

The Medical Journal and Examiner.

VOLUME LVI.

JANUARY, 1888.

NUMBER I.

A NEW METHOD OF TREATING THE VEGETABLE PARASITIC DISEASES OF THE SKIN.

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[Read before the Section of Dermatology, Ninth International Medical Congress, Washington.]

In this paper I propose to consider the treatment of what are commonly known among dermatologists as the vegetable parasitic diseases, viz., tinea favosa, tinea versicolor, and the three forms of tinea trichophytina. As the form of tinea trichophytina known as tinea circinata, or ordinary ringworm, and tinea versicolor are very superficial, they are very readily cured by any of the ordinary methods. The method I am about to describe will be more applicable to those wherein the deeper structures, as the hair follicles, etc., are involved, viz., favus (ringworm of the scalp), and barber's itch.

In these latter diseases many different methods of treatment have been suggested and tried from time to time, but they are usually very unyielding to treatment, and particularly so unless all the diseased hairs be systematically removed. For this reason I feel warranted in assuming that a suggestion regarding a method which to me bids

fair to be preferable to any other, and which has never before, to my knowledge, been referred to, will be tolerated, as also a brief report of the few cases which I have treated in this manner.

The great object in all methods is to apply the parasiticide in such a manner as to insure its penetration to the bottom of the hair follicles and into the hair structure itself beneath the surface of the skin. Theoretically, and I think practically, likewise, the method I am about to describe, accomplishes this purpose.

There is a long-recognized law in Electro-Physics, in accordance with which fluids in a galvanic current move from the positive to the negative pole. It was demonstrated years ago, and repeatedly, that the absorption of medicinal substances may be induced by applying this principle, viz., by applying the substance to be absorbed on the positive electrode, placing it on the skin, and completing the circuit by placing the nega-

tive electrode on some other part of the body. This is, perhaps, best substantiated by the fact that a solution of cocaine applied to the surface of the sound integument in this manner, will, in a very few minutes, so permeate the skin as to produce complete local anæsthesia of all the cutaneous and subcutaneous structures covered by the positive electrode. On this subject I read a paper at the last meeting of the American Medical Association (*Journal of American Medical Association*, August 20, 1887). It was, in fact, in making these local anæsthesia experiments by this method, that the thought first occurred to me that the same principle might be used to advantage in the treatment of these very stubborn and annoying maladies.

The means employed in the method which I am about to describe to induce the penetration of the parasiticide are the galvanic current; though by this method it is possible also that the electricity itself has a salutary effect upon the diseased condition, or, in other words, has a destructive influence upon the fungus giving rise to the disease. With these prefatory remarks, I shall now proceed to describe the method as I have employed it.

BATTERY, STRENGTH OF CURRENT, ETC.—Though not an expert electrician myself, I believe it is an established fact that a large number of small cells gives more electrolytic action than the same area of large cells; I have, therefore, used a battery constructed on this principle—the same instrument, in fact, which I use for the removal of superfluous hairs by electrolysis—known as the McIntosh battery. For reasons not necessary to discuss at present, the Faradic current will not answer, neither will the negative pole of the galvanic. The strength of the current must vary with the sensitiveness of the part, the size of the electrode, etc. It is always best to use the strongest current that can be borne without discomfort to the patient, which, with the battery I use, when in good order, varies from five to ten cells. No universal

rule can be laid down, the safest guide being the feelings of the patient and the experience and discretion of the physician. For instance, to state a given number of cells would be inaccurate, inasmuch as the strength of the cell always varies with the freshness of the battery fluid, the length of time the plates have been in use, etc. To specify it as so many milliamperes would be unscientific, without giving the size of the electrode or stating the amount of the resistance. When there is much irritation or hyperæmia a very strong current will not be tolerated. It is not necessary that it should, as there is then less resistance. The sponge on the electrode used for the parasiticide solution should be of the finest and softest quality.

MODE OF APPLICATION.—The surface to be treated should first be thoroughly cleansed of crusts, scales and sebaceous matter, by the usual process of oiling and washing with soap and hot water, etc. If thought necessary, of course, the loose hairs may be removed, though in the cases I have treated this was not done. I saturate the sponge of the positive electrode with whatever parasiticide lotion is preferred, which may be aqueous, alcoholic or ethereal, and place it directly upon the part to be treated. I then place the negative electrode, well saturated with water, on some point near by. A more remote point, as the hand, for instance, will answer, but it will take longer time to get the same effect than when placed near by. The electrodes should be kept firmly pressed to the skin, the positive being occasionally moistened, as required, with more of the solution and the negative with more water. In order to get a sufficient effect, the electrode should remain on each place several minutes before applying it to another place on the scalp. I think it is not wise to continue the treatment over ten or fifteen minutes in all at each sitting, and perhaps not oftener than once a day. The parasiticide used in the cases I treated was a one per centum solution of bichloride of mercury.

I had hoped to be able to report a considerable number of cases, but I have, as yet, only been able to treat three patients by this method—one of favus and two of tinea tonsurans.

CASE I. John A., æt. seventeen years, otherwise in fair health, was first seen January 12, 1887. He had had eruption on his scalp for ten years, during which time he had been treated by numerous physicians without receiving any permanent benefit. I ordered all local treatment and washing of the scalp to be suspended for two weeks. January 26, examination revealed a patch midway between vertex and forehead, about two inches in diameter, covered more or less with the characteristic yellow sulphur-colored crusts, showing in many places distinctly the cup-shaped character. The hairs were dry, brittle, broken off and loose, and a considerable amount of hair had been lost. There were also two or three other small patches similar in character. Examination with the microscope showed the crusts to be composed of the characteristic spores and mycelia.

The part was thoroughly cleansed and the treatment begun as described and continued daily. In addition, an ointment of one part of citrine ointment to four of lard was applied every night, and in the following morning the scalp was thoroughly cleansed preparatory to the electrical treatment. This treatment was carried out daily until February 1. The patient was not again seen until the latter part of May, when he was found to be entirely free from the disease.

CASE II. Mary L., æt. ten years, applied for treatment February 21, 1887. She had

scaly patches on her scalp for four years—one patch in the region of the parietal eminence of right side about two inches in diameter, and two other smaller patches. The hairs were broken off, etc. The microscope revealed the trichophyton in and around the hairs. Treatment was the same as in Case I, except that no ointment was applied, and was continued almost daily for three weeks. June 12, the patient has had no treatment since March 14 and has been well ever since.

CASE III. Susan L., æt. twelve years, sister to Case II., applied for treatment at the same time. She had had a disease similar to her sister's, though not to quite the same extent, for two years and a half. Diagnosis was also verified with the microscope. Treatment was commenced at same time as her sister, and continued in the same manner for the same length of time. The result was complete recovery.

Although I have been unable, from the very limited number of cases treated, to determine to my entire satisfaction the full merits of the method, or the comparative merits of this and other methods, I am, nevertheless, satisfied that I accomplished results in these cases that I could not have attained by any other line of treatment such as I was before accustomed to try, and I therefore feel warranted in recommending its adoption by those in dermatological practice, and I feel convinced that, with further experience, more extended observation and more general adoption of the method, it will be found superior to all others that have been tried.

163 STATE STREET.

TWO CASES OF ABDOMINAL SURGERY.

TWO CASES OF ABDOMINAL SURGERY.

BY R. G. BOGUE, M. D.,

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The patient, an unusually intelligent, unmarried woman, twenty-nine years of age, had suffered for five years almost constant distress, referred to the region of the ovaries. For a few days preceding and following the menstrual periods, the pain was severe; during the period of the menstrual hæmorrhage it was very severe, and during the five years mentioned, the patient was at no time entirely free from pain in the region of the ovaries. During the last four of these years she was confined to her room and bed. During all this time there was never any evidence of inflammation of the pelvic organs, and the ovaries were not appreciably enlarged. The following abridged account of her condition immediately prior to the operation is from a letter from her physician:

"She suffers almost constant nausea and dizziness and pain in the ovaries, which keep her nervous system in a highly disturbed condition. She seems to suffer a little more at each menstrual period than at the one preceding. Every measure for relief in such cases, known to me, has been tried and almost without effect. Any kind of an anodyne, even the local application of cocaine, intensifies the nausea to such a degree as to reduce her to the verge of starvation. She is, however, not hysterical, and there is no evidence of organic disease of the ovaries."

An exploratory incision two inches long was made in the median line of the abdomen at the junction of the lower and middle thirds of the distance from the umbilicus to the pubes.

The fallopian tubes and broad ligaments were intensely hyperæmic, but free from any inflammatory infiltration.

The surface of the ovaries was studded

with small cysts, none of any considerable size, many being imbedded in the cortex of the organs.

The ovaries and two-thirds of each fallopian tube were removed. The broad ligament was transfixed by a needle armed with a double silk ligature, carbolized and waxed and the lateral halves tied separately in the usual manner. The abdominal wound was closed with six stitches of carbolized and waxed silk, and dressed with carbolized gauze.

With the exception of persistent nausea, the patient recovered from the anæsthetic and the operation promptly. Because of the inability of the stomach to retain food, nutrient enemata were given for a long time. She complained of pain in the pelvis, much as before the operation. The operation was followed by a severe and protracted attack of pelvic peritonitis and cellulitis, and an abscess finally, which pointed in the right iliac region. This, at first, seemed to be in connection with the stump of the broad ligament, but it closed so promptly after evacuation that it may have been only in the abdominal wall. She made a tedious recovery, and for a long time complained of tenderness on pressure over the pelvis, and the stomach continued very sensitive. There occurred quite an increase in pain and nervousness for a few days each time when the menstrual period would have occurred. When last seen she was much improved, and had commenced to gain in flesh.

II. NEPHRECTOMY, in a case of pyonephrosis from a calculus in the pelvis of the kidney.

The patient, Mrs. M—, 32 years of age, married, and the mother of six children, in the fifth week after her last confine-

ment, lifted and carried a heavy burden. This action was shortly followed by a feeling of stiffness and soreness in the right side.

Two months later she noticed a swelling in the right lumbar region, and during the following nine weeks was very ill. At this time, seventeen weeks after lifting the heavy weight, she was seen by Dr. Mary H. Thompson, of the Chicago Hospital for Women and Children, who found and opened a large abscess in the right lumbar region. This abscess cavity was freely washed out, and a drainage tube introduced. After this the discharge rapidly diminished to about one ounce of inodorous pus daily and the patient gained in flesh. This was her condition nine months after the original traumatism. About this time, through taking cold and domestic trouble, she suffered a relapse, and was brought to the hospital mentioned above, in September, eleven months after the original attack. When admitted she could not stand erect, suffered very severe pain in the right lumbar region, had no appetite, and was sleepless. The sinus was enlarged, the former treatment was repeated, and she improved for a time.

On October 6, pus was first found in the urine, and it steadily increased in quantity. There was great soreness in the right leg, which finally she was unable to extend. The inguinal glands became much swollen and very tender. During the first week in November her suffering was extreme. The highest temperature observed was 101.6° Fahr.

On November 11, about thirteen months after the first symptoms of the trouble were observed, the patient was anæsthetized, and

the kidney removed. The incision was made midway between the crest of the ilium and the twelfth rib, parallel with the latter. The kidney was about double the size of a man's fist, and reached almost to the brim of the pelvis and to the umbilicus. The operation was tedious and protracted, because of the difficulty experienced in including the attachment in a ligature. This was caused mainly by the large size of the calculus in the pelvis of the organ, which prevented securing of the part with the forceps. Finally, a heavy ligature of carbolized and waxed silk was placed around the pedicle and securely tied. The kidney was then removed by dividing it into two portions, and each of them taken out separately. All bleeding vessels were secured by ligatures or by hæmostatic forceps. The cavity was cleansed with a two per centum carbolized solution, and a dressing of carbolized gauze applied. The calculus weighed 315 grains, and measured four inches in circumference in its longest diameter, and three and one-quarter inches in its shortest diameter.

The patient rallied fairly for a short time, and then sank and died two hours after the operation, from shock incident to the prolonged operation and loss of blood.

I am satisfied that in these cases, especially when the kidney is large, the best plan would be to freely open the kidney, preferably by means of the galvano- or thermo-cautery, thus avoiding hæmorrhage, since even a thin sac bleeds freely upon incision or laceration. The sac should then be allowed to drain freely and to shrink in size, until it can at some subsequent time be removed with less difficulty.

EDITORIAL.

MEDICAL INVESTIGATION AND ITS PRACTICAL RESULTS.

Among the many important papers presented at the *Ninth International Medical Congress*, held in Washington, that of Professor N. Senn, of Milwaukee, on *Experimental Intestinal Surgery, with reference to the treatment of intestinal obstruction*, probably excited as much interest, and elicited as much favorable comment, as any paper read during the congress. By the results of the work done, in his accustomed pains-taking manner of investigating, Professor Senn, has not only contributed to the advancement of scientific surgery, but has again given evidence of the inaccuracy of the charge that has been made, that Americans make but little original investigation, and are content with utilizing or modifying the results of the labor of other investigators. It is not unnatural that, in the past, more such study and investigating should have been done in the older countries of Europe, where governments have furnished laboratories and encouraged and aided the investigators, than in America, where, at least until very recently, such work had to be done mainly by individual energy and enterprise; by men who were at the same time engaged in active practice and personally earning the means with which to pursue such investigation. It is much to be desired that the good example set by wealthy citizens of some of the older cities of our country may be followed by others by endowing laboratories and affording greater facilities in connection with medical educational institutions, or otherwise, for the pursuit of scientific research. Among those who are most prone to rail at the alleged unreliability in the practice of medicine are many who could do much by contributions from their abundance to aid in putting the practice of medicine upon a

higher plane, if they were as willing to contribute to the means leading to prevention of disease as they are to the support of charitable, or so-called charitable, institutions provided for the care of those who are sick, who are paying the penalty of the violation of the laws of nature—laws violated either by themselves or their progenitors, whether through ignorance of them or through willful disregard of them. Whilst there should be no discouragement offered those who support deserving charitable institutions, maintained for the care of the sick who need and deserve such practical charity, yet it cannot be too often, or too forcibly, impressed upon those thus charitably disposed that there is yet a wider field of usefulness open to them, for all must admit that one serves his fellow man better if he can aid him in avoiding that disease which comes directly or indirectly from violating nature's laws. This can best be done by affording medical men the greatest possible facilities for acquiring full knowledge regarding man in health; the deviations from health, which we are accustomed to designate as disease; the causes and the modes by which disease is produced, and the laws by which nature is governed in her efforts to effect recovery therefrom, that intelligent effort may be made by man to assist nature in her effort. With these data firmly established, the medical man may be regarded as being, first, in the best position to advise his fellow man what to do and what not to do to maintain health, and thus to avoid disease, and in the second place, to aid his recovery from disease which resulted from ignorance or neglect of such knowledge.

In this respect, a wide field is open to the benevolent. So far, in this country, but few of the wealthy, outside of the

medical profession, have entered it, but it is honorable, philanthropic, useful. It affords great scope for the most practical form of intelligent charity, and the fact should be better and more widely made known to those who have been favored by fortune, and who wish during lifetime to do good for the benefit of the less fortunate of their fellow men, and to see for themselves the carrying out of their plans, and the good results therefrom, instead of leaving bequests which may or may not accomplish the end sought in leaving those bequests. The field is open to the world, but we hope that there are some among those in Chicago whom Fortune has blessed in a marked degree, and who in other respects have shown in various practical ways their pride in their city and its development, who will be as liberal to this city, which has become so great a medical center, as have been some of the residents of the older cities of our country, and the *Journal and Examiner* will be prompt to give the credit due the one who shall be the first in our city to follow the honorable example so generously initiated, recently, in one of our great seaboard cities.

MEDICAL APPOINTMENTS IN PUBLIC HOSPITALS.

The management of public charities by politicians, and especially by the average politician of city or county governing bodies, is always attended with difficulty. Especially is this so in the selection of proper professional attendants. It therefore happens that the medical appointments are often unwise and the composition of the professional staff unstable.

For some years past, in the Cook County Hospital, the appointments have been made without much reference to the qualifications of the men appointed, even for the care of the sick, and apparently with no reference to qualification for giving clinical instruction in an institution particularly well adapted for that purpose, and affording a field of great usefulness.

During the last few months there has been a reorganization of the County Board of Commissioners, and an effort made to bring about a better state of things. The daily papers announce that each Commissioner has nominated one member for the Medical Board for the hospital, and that most of the nominees have been accepted by the Board. Some good men are on the staff. How much, if anything, others have paid for appointments is not known. It seems probable, if not certain, that the value of the hospital as a means of clinical teaching has been very much crippled in the past by the fact that men not qualified to teach have been able to buy positions on the staff. Whether the "Reform Board" has brought about reforms in this respect may well be questioned.

MEDICAL LEGISLATION.

The efforts that, during the last few years, have been made to bring about sanitary reforms, to prevent sickness, have very naturally suggested the desirability of also securing for those who can not or do not escape sickness, a greater degree of knowledge and skill on the part of physicians and surgeons — a higher grade of qualification for the management of disease itself. In several States laws have been in operation for several years; in others tentative efforts are now being made to regulate the practice of medicine. The need of some such regulation is very generally recognized by the non-professional, as well as by the professional, public; in fact, by almost everybody except the quacks. How best to meet this need of society is, however, not quite so evident. Different plans are suggested; in different States diverse laws have been enacted, all, however, seeking to secure better education and good character, while not attempting to say what drugs or methods shall be used, but leaving those who give evidence of a knowledge of the great underlying facts and principles of medicine quite free in the use and application of those facts and principles. In other

words, not attempting to decide when doctors disagree, but only requiring that all who practice medicine shall be doctors — not in title only, but in fact, learned in the science and skilled in the art of medicine. Absolute uniformity in practice would evidently be impossible, even among the graduates of a single college. Only well-established facts are uniform and permanent; opinions, even though plausible, are various and fluctuating.

How shall a State secure for its inhabitants the best skill? How protect them from imposture and ignorance? Of the three things desirable — 1, natural ability; 2, good education; 3, good character, or honesty in the use of knowledge — it is evident that we can not always secure the first; can not prevent a fool from studying medicine any more than we can keep him out of the schools of law or of theology, and to such an one learning brings but little added strength. To the student who sought to recommend himself to the learned Erasmus by saying *decem annos consumpsi in legendo Cicerone*, the scholar only replied by repeating "*one*," the vocative of the Greek word for ass. No ten years will make of one, naturally deficient, a strong, useful member of the profession, and we can not, however desirable it might be to do so, prevent such from studying; nor can we prevent them from graduating, nor from practicing, nor from getting such recognition as their knowledge may enable them to secure. It is manifestly impossible to select as students those naturally gifted or naturally apt for medical study and practice.

Over the second and third qualifications, however, the public can exercise some control. The methods by which this can be best accomplished are as yet matters of uncertainty. Our most learned men and most careful observers are by no means agreed as to the ways and means. This difference in opinion seems to depend, in part, at least, upon the tendency to look at only one side of the ques-

tion. Some say: "All doctors ought to be learned, and, therefore, any law which does not secure this is a failure." From this standpoint there is abundant ground for criticism, not only of all existing laws, but, we apprehend, of all that shall be enacted. Is there any way, however, of bettering the qualifications of the profession, even though we do not accomplish all that we desire? Most certainly there is. In some of the States this betterment has already been reached, though much more can probably be done. To do this, however, we must deal with things as we find them, not as we imagine they ought to be.

It is manifestly impossible for the State to say that any one, no matter how ignorant, shall not study medicine. It is impossible for the State to determine the conditions upon which medical schools may admit or matriculate pupils. To attempt to do this is to attempt what is impracticable. The State may have a right, when any one proposes to practice medicine, to inquire into his or her knowledge of medical facts and as to his or her personal character, just as it may into the legal knowledge and character of those proposing to practice law. It is practicable to fix a standard of attainment in some way, or authorize some authority to, in some way, do this. There are two methods or modes of procedure open. One is to carefully investigate the length and breadth of the curriculum and the methods and the thoroughness of the instruction in the different medical schools, and permit to practice in the State only the graduates of such schools as, in their requirements for admission and for their degrees, reach a fair average standard; the diploma of such schools, together with the evidence of good character, being received as *prima-facie* evidence of qualification. This is the course adopted, with a good degree of success, in Illinois. The other method is to require every person proposing to practice medicine to pass an examination before a properly and legally appointed board, and

to prove himself qualified to enter upon the practice of the profession. This is the case in Minnesota. Of course, there can be no absolute standard of qualification and no uniform standard in different States, but the effort should be made to secure for a community a sufficient number of medical men with the highest possible qualifications.

That there are difficulties in the execution of either one of these methods is very clearly shown by the fact that good, capable men are at variance in their opinions upon the subject. We think, however, (1) that as a matter of justice the conditions upon which men are admitted to practice should be such as can be complied with by graduates of medical colleges of other States and of other countries, as well as those of the State in which the law is in force; (2) there must be some authority, board, or committee, to determine what standard of excellence or knowledge shall be required. This cannot be done by legislative enactment, for the reason that the standard will be variable and regulated by the supply and demand, just like that of any other service, as, for instance, school-teaching or the practice of law. Although the Illinois law has worked well, upon the whole, we are inclined to think that something like the Minnesota law, requiring that every one shall be examined, no matter from what country or State or from what college he or she may come, is the better plan. The college that does the best teaching serves best the State, and will find that a larger percentage of its students will pass the ordeal of the State examination.

Of course no member of any teaching institution should be a member of the examining board. Many minor details must

require careful thought, and after all there will be friction and there must be dissatisfaction. We must remember that all efforts in this direction are still tentative, and that though upon high Olympus Minerva came in the fullness of her intellectual vigor, as well as personal beauty, from the brain of Jove, such things seldom happen among mortals.

The possibility of some uniform regulations in the different States has been discussed, and, at the last meeting of the American Medical Association, a committee was appointed, with instructions to prepare a plan or draft a law which might meet the views of those interested in the different States. Whether uniformity of legislation is possible or not, it is, nevertheless, worth while to consider the question in all its bearings. For ourselves, we confess that it does not seem probable that the members of the legislatures of two or more States can be brought to think alike, or so nearly alike as to adopt the same means and in the same language, nor do we think this is a matter of as much consequence as do some of our friends in the profession. It is, however, desirable that, in some way, neighboring States shall be able to require something like uniform qualifications on the part of those who are permitted to practice; otherwise, the more incompetent will gravitate to those States where the standard is lowest. We have seen something like this as a result of the enforcement of the Illinois law. Many hundreds, who could not comply with the law, emigrated to Michigan, Indiana, Missouri, Iowa and Wisconsin. Like wolves and bears, they are now being pressed still further towards the border-land of civilization.

CHICAGO GYNÆCOLOGICAL SOCIETY TRANSACTIONS.

REGULAR MEETING, SEPTEMBER 24, 1887.

The President, Charles Warrington Earle, M. D., in the Chair.

Professor J. H. Etheridge read the following paper, entitled, *Vaginal Hysterectomy*; report of three cases operated on at the Presbyterian Hospital. He said: "I can never convey an adequate idea of the relief to the operator offered by the method of hemostasis by forcipressure on the broad ligaments, as compared with that of ligatures. I think no one can fully appreciate the untold superiority of the former method over the latter till he has had experience in the performance of that operation under both methods."

CASE I. Mrs. S., æt. 47, mother of nine children. She had otherwise always been well. She presented herself February 1, 1887, with epithelioma of the cervix uteri. It did not involve the vault of the vagina. The broad ligaments did not seem to be thickened. Mobility of the uterus was complete. After preparatory treatment with a daily laxative and diuretic for one week, the operation was performed on February 8, 1887.

The cervix was easily drawn down to the vulvar orifice, and with scissors its vaginal attachment was divided. Strong adhesions to the bladder and rectum were found, and, in consequence thereof, the rectum was opened in one place and the bladder in two places in the process of freeing the uterus from these two organs. After the two broad ligaments were sufficiently isolated, and the fundus was turned backwards and brought down, the left broad ligament was first penetrated and divided into two sections with broad ligatures, and tied as securely as hands could tie them. It was then severed as close to the corpus uteri as was possible, and the whole organ came out

of the vagina. Treating the right broad ligament similarly was a much easier matter, because the uterus was out of the way. This attachment was at once severed, and the whole organ was then from the patient. The ovaries were subsequently removed.

The rent in the bowel was closed by continuous suture without difficulty. The larger rent in the bladder was also closed by continuous suture; but it was done at a great disadvantage, from its peculiar position behind the symphysis pubis and looking directly backwards. To draw down the bladder and to so evert the edges of the rent as to apply the stitches was a delicate and difficult task. The smaller rent, undiscovered at that time, was not closed up. Just as this sewing up was completed, there was observed welling up into the shapeless excavation left after the removal of the uterus great quantities of arterial blood. From which broad ligament it came it was impossible to decide. After a long time the bleeding vessel, which was in the right broad ligament, was secured, but not till after a ligature had been pushed off the left broad ligament. All vessels were eventually secured, but not till a great quantity of blood had been lost.

The top of the vagina was closed from before backwards with a continuous suture, the ligatures were brought down, iodoform-gauze stuffed into the vagina, and the patient put to bed. Reaction followed, but slowly. She died from peritonitis and exhaustion in forty-five hours, having passed eight ounces and one drachm of urine in the meantime.

The autopsy revealed a small rent in the bladder, which it was concluded had been the cause of the peritonitis.

CASE II. Mrs. C., æt. 36 years, tall, spare, nervous, and of sanguine temperament, presented herself February 10, 1887, with a small epithelioma of the cervix uteri. The upper portion of the vagina cervix was not involved. The choice between amputation of the cervix and hysterectomy was left to the patient.

After full explanation of the danger and results of the two procedures, she decided to have the latter operation, which was performed on February 25, 1887.

The uterus was easily drawn down to the vulvar orifice and freed from its vaginal attachments by the use of scissors. The bladder was uncommonly closely attached to the uterus, and before its complete separation was accomplished, it was opened. The opening into the Douglas cul-de-sac was easily effected, and the fundus turned backward through the sacral hollow, down and out through the vulva. The broad ligaments were secured with silk ligatures, and the uterus removed after its separation from them. The ovaries were separately removed immediately afterwards. In closing the vesical rent, the ligatures slipped the left broad ligament and it bled profusely. The hæmorrhage was soon checked and the vagina was closed from before backwards. The ligatures were brought down into the vagina, and the latter organ was filled with iodoform-gauze. The patient rallied well. The temperature rose to 100° F. on the second and third days. Thereafter nothing worthy of special mention occurred. On the tenth day, an elastic ligature, attached to the patient's left thigh, was tied to those protruding from the vagina, and in five days they began to come away, and in forty-eight hours afterwards the last one was removed. In thirty-six days she left the hospital.

CASE III. Mrs. C., æt. 49, a widow, appeared on April 13, 1887. Her last confinement had been twenty-eight years before. She was still menstruating regularly every three weeks, flowing one week each time.

Six months before, she began to have leucorrhœa and to lose occasional small amounts of blood. She had excellent general health. Her appetite and digestion were good. Her bowels, kidneys, and skin acted naturally. She was well nourished and presented a promising prospect for any surgical ordeal. One thing that one could wish different was a too rapidly acting heart. It beat over ninety times a minute, and the arterial impulse was persistent. She had often seen lateritious deposits in her renal secretion.

Examination revealed an epitheliomatous degeneration of the cervix, with about one-fourth of an inch of uninvaded tissue of the cervix between the cancer and the vaginal vault. The uterus was about four inches deep, and it bled freely upon withdrawal of the sound. The fundus was large, and was easily felt through the abdominal wall. The uterus was freely movable, indicating the non-implication of the lymphatics in the broad ligament. The absence of invasion of the vaginal wall and of the circum-uterine tissues led to the recommendation of an operation for removal of the whole uterus.

From April 19 to May 5, the date of the operation, she took cascara daily, and digitalis and kalium acetate. The condition of the excretions seemed to be as nearly perfect as possible preparatory to an operation. She slept in the hospital the night before the operation, and took the customary antiseptic general bath, and had administered several vaginal bichloride douches.

The operation.—The cervix was drawn into the vulva with two large, locked vulsella forceps, while the vaginal attachment to the cervix was divided with scissors. Gradually and patiently the circumcervical tissues and the attachments of the bladder and rectum were crowded away with the finger nail till the Douglas cul-de-sac could be opened. Then it was found quite impossible to reach the top of the fundus with the fingers. The cul-de-sac of peritoneum between the bladder and the uterus.

was then opened, with the hope of being able to retroflex the uterus by means of the fingers placed before and behind it. This manœuvre was found to be an impossibility. After repeated vain attempts to reach the top of the fundus with the fingers that method was abandoned. Trial of very deep supra-pubic pressure to thrust the fundus back towards the sacral hollow, and at the same time to grasp and pull down the fundus with a small vulsella forceps thrust through the Douglas cul-de-sac, at last succeeded in getting the top of the uterus out of the vagina, but only after the forceps had torn loose several times. Snap forceps were then placed on the broad ligaments and the latter divided. The subsequent dressing consisted in tucking a thin layer of iodoform-gauze into the vagina, care being taken to avoid separating the top of the vaginal walls. The danger of this separation must be evident to any observer. Ribollet attributes the death of one of his patients to crowding too much gauze into the upper vagina.

No stitches were used to close the upper end of the vagina. Its borders were permitted to collapse and to close in any position that they chanced to occupy. Fear that the bowels and bladder might seek an outlet through the vaginal tract is wholly groundless. One ligature was used for a vaginal artery. No attention was paid to it in the final dressing.

The ovaries were both removed after the uterus was finally separated from its attachments.

The patient reacted well from the shock of the operation, which consumed seventy-five minutes. Her daily progress was so uniformly satisfactory that any detailed descriptive statement of it would be unnecessary.

The pulse ranged from 90 to 120 beats per minute. It was 98 when she left the hospital. The temperature reached 100°F. for one morning only, and on five evenings, from the third to the seventh days, inclusive.

The amount of urine passed daily during the first fourteen days after the operation is indicated by ounces in the following figures: 19, 19½, 25, 33, 26, 24, 23½, 25, 30, 31½, 34, 40, 35, and 26½.

The forceps, one pair on each broad ligament, were removed at the end of forty-eight hours. Although one knows that forty-eight hours of closure of the lumen of an artery will necessarily destroy its patency, yet the writer had some misgiving when the forceps were very carefully un-snapped and carefully removed. No bleeding followed the removal of pressure from the broad ligaments. The vagina was not filled with gauze. Iodoform was daily blown into it as far as was possible.

It was impossible to state definitely the amount of drainage that escaped; perhaps three tablespoonfuls daily, for the first two days, would cover it all; afterwards the amount could not have been more than one tablespoonful on the third and fourth days each.

The following are some points of interest concerning this operation.

Indications for its performance.—(a) Ten years ago, and, indeed, until quite recently, the chief indication for the performance of vaginal hysterectomy was malignant disease. At present it is agreed by all operators that the earlier it is performed for cancer the greater are the chances for its non-recurrence. This dreaded malady always returns sooner or later after amputation of the uterine cervix, and of course proves fatal; whereas, when the whole organ is removed, the patient is given the only hope of permanent recovery. Hysterectomy does not always prevent recurrence of the development of this neoplasm, yet it offers the best results. Martin reports eight cases of hysterectomy for cancer, without relapse, varying from two and one half to five years. According to Singer, the average of survival after this operation is eleven months. Olshausen reports cases, after operation, of relapse, once after eighteen months, twice after two

years, and twice after three years. Seven patients had survived two years without recurrence, and seven other women had lived over one year without relapse. Recurrence usually takes place in the seventh month after removal of cancer, and sixteen cases of F. would seem from his report to be in a fair way for complete recovery.

The most favorable conditions offered for hysterectomy are the non-involvement of the vagina, and complete mobilization of the uterus, which shows the non-involvement of the *ligamenta lata*. In other words, the earlier in the disease the operation can be performed, the better are the promises of a radical cure. Frequently it occurs that the disease has advanced too far before the gynæcologist is consulted.

(b) *Procidentia uteri* is another condition for which this operation is performed. Anaplastic operations do not always restore the organ to its normal level. Artificial vaginal stenosis to the extent of the non-admission of the little finger has failed ultimately to relieve the procidentia through gradual dilatation of the vaginal channel.

(c) Fibrous bodies of the uterus which offer the point of departure of serious irregularities, have constituted a cause for vaginal hysterectomy. Of course reference is had to small tumors. Hedenreich* reports four cases of operation with four successes. He considers that at present it is impossible to pronounce upon the relative merits of vaginal hysterectomy and of castration for small fibrous bodies in the uterus. Péan † recently reported a case of the same operation for multiple fibroids.

(d) The hystero-neuroses (inveterate dysmenorrhœa, neuralgia, convulsion, etc.), for which oöphorectomy is so often performed, Péan considers a justifiable cause for this surgical procedure. His reasoning is that these neuroses sustain an intimate

relation to the uterus itself, consequently the uterus should be included along with the tubes and ovaries. (Caldwell, Paris letter in *Chicago Medical Journal and Examiner*, February, 1887.)

As an illustration of the *furor operativus*, a recent article from the pen of a Cologne surgeon, Dr. Frank, may be mentioned, which was published in the April 3, 1887, number of the *Archiv. für Gynäkologie*, in which are enumerated the following cases of removal of the entire uterus:

For endometritis, four cases; for retroflexion or retroversion with fixation, three cases; pruritus uterinus, one case, and for neuralgia and retension of urine, one case.

Members of the medical profession can scarcely read the account of these cases without being astounded at the amazing temerity of such proceedings.

The various steps of the operation consist in (1) freeing the cervix from its attachments, (2) hemostasis, and (3) the subsequent dressing.

Professor Christian Fenger exhibited specimens of *Carcinoma of the Cervix*.

The first specimen was from a woman about 40 years of age, a multipara. She had symptoms of the affection for over a year, and was in rather an emaciated condition, partly on account of chronic bronchitis and a cystic goitre, and partly on account of the carcinoma, where several local operations had been performed before. It was a cervix carcinoma, with the cervix involved almost to the internal os, the white mass below being the carcinoma tissue, and all of the rest of the cervix being carcinomatous. He was induced to operate in the case by the extreme mobility of the uterus. As a rule, in carcinomas that have gone as far as the specimen exhibited, operation is not advisable; it is too late. However, she was not asked to be operated upon, but she implored him to operate on her at any risk to her life, and he operated. Before the operation her pulse was 120, and she was, as stated be-

* Hedenreich, Albert. "De hysterectomie vaginale," (*Semaine Med.*, Paris, 1886, vi., 69-70).

† *Gaz. des Hôpitaux*, October 12, 1886, pp. 950-951.

fore, weak, but the uterus was movable and was taken out without any considerable difficulty. Before the end of the operation, which lasted about two hours, she was very weak and almost pulseless. This condition lasted after the operation, and in the evening her pulse was 170 and could scarcely be counted. She did not lose any quantity of blood to speak of. He made a saline infusion of twelve or thirteen ounces in the brachial vein, and afterwards the pulse got stronger, and continued so from that time, and there was no further trouble during her recovery.

The next specimen was a portio carcinoma extending about an inch into the cervix on the posterior lip. It was a portio carcinoma because it had its greatest extent down at the vaginal portion, and became smaller and smaller as it went up in the cervix. In a cervix carcinoma that opens down in the vaginal portion, we should expect to have a larger cavity in the cervix and a smaller opening in the vaginal portion. This patient was 28 years old, and in spite of her being a nullipara the operation was very easy. As in all of the cases, it was necessary to dilate the vagina posteriorly, but otherwise, evidently on account of the small size of the uterus, the operation was easy—so easy that there was no cause for either ante- or retro-version while taking it out; it was just held down, and the ligaments ligated. In this case the operation was so easy that he united the peritoneal as well as the vaginal wound, closed them up together with a row of sutures, commencing in the anterior fornix, going through the anterior peritoneum, the posterior peritoneum, and out of the posterior fornix, thus closing up by one row of sutures the peritoneal and the vaginal wound. In the other case, he closed the peritoneal wound and left the vaginal wound open. The drainage used was iodoform gauze. She made the most undisturbed recovery of all of them; never had a rise of temperature nor of pulse, and never had any pain. The tubes and ovaries were not removed.

The third case was a small portio carcinoma, extending but slightly up in the cervix, and could be seen on the posterior surface of the uterus. She had previously had perimetritis. This uterus was perfectly movable, but the operation was not easy, as the loosening of the bladder from the uterus was difficult, while in the first two cases it was easily detached with the finger. Perhaps on account of the previous perimetritis, the tissue between the bladder and uterus was so dense that it had to be cut with the scissors, and he had made a small opening into the bladder which was united at the time it was cut, and did not leave any bad results, not even a temporary fistula, as no urine passed at any time down into the vagina. Her recovery was uninterrupted.

The fourth specimen was another portio carcinoma on the posterior lip, reaching up in the cervix perhaps half an inch. The patient was a multipara, 28 years old, and quite fleshy. Contrary to expectation, the operation was extremely difficult. The vagina was not unusually narrow, but the difficulty of the operation was due partly to the large size of the uterus, and partly on account of the fact that she was very fleshy. In a very fleshy person there is some little part of the vagina narrowed by the subcutaneous tissue on the inside of the nates. There was in this case the same difficulty as in the previous one about separating the bladder from the uterus, but it did not cause any passage of urine into the vagina. He operated according to the method of Leopold, loosening the lower part of the broad ligaments first, and then going up until there are no firm bands left on the sides of the uterus. When that is done, and the anterior fornix loosened, as a rule the uterus becomes so movable that it comes down an inch or an inch and a half or two inches into the vulva, so that the rest of the operation is comparatively easy. But in this case it did not come down. There was an unyielding condition of the lateral ligaments.

The reason for it was not known. This condition made the operation difficult and long. At the end of the operation it was thought best not to lose time in uniting the peritoneal or the vaginal wound. He only brought down the ligatures to the border of the vaginal incision, uniting them there and leaving the peritoneal cavity open, using for drainage iodoform-gauze packed up in the peritoneal cavity. This patient did not have an uninterrupted recovery. She had a temperature for a couple of days of about 100.5° F., later on, 100°, later, below a hundred. What was more alarming than the temperature was that the pulse was up in the neighborhood of 120 most of the time. In this case he had to change the gauze packing at the beginning of the rise in temperature, taking it out and introducing a drainage tube so as to be able to wash it out every day. The washing-out, however, was not begun until after the tenth day, because, at least one, perhaps more cases are on record where, when the washing-out was performed early, the fluid had gone up into the peritoneal cavity and caused general infection.

Dr. Merriman: Do you think that if you had sewed up the cavity of the peritoneum you would have saved her much?

Professor Fenger: I must confess that I believe in closing up the peritoneal wound as a matter of safety.

These specimens show one point, namely, that a strict line, as Ruge and Veit have pointed out, between portio carcinomas and cervix carcinomas does not exist. They say that a portio carcinoma very rarely extends up into the cervix. If that is the case, it would, of course, not be justifiable in many cases of simple portio carcinoma to do anything but the partial operation. Fritsch has called attention to a fact which these specimens show very distinctly—that is, the difficulty of finding out if a portio carcinoma is limited to the portio proper, or extends up into the cervix or even into the cavity of the corpus.

I might say a few words in regard to the

manner of operating. It is very far from being generally agreed upon which operation is the best, and the variety of procedures is very large. As an illustration, we will take the treatment of the broad ligament and the closing of the vaginal and peritoneal wound. I think there has been an improvement in the technique of operating over the old methods in operating as proposed by Sänger and Fritsch. They begin the operation by the ligaturing step by step of the parametria. When that is done well on both sides, the uterus will become so movable that the remainder of the operation can be done with comparative ease. This ligaturing step by step, together with Martin's method of suturing, does away with one of the dangers of the operation, namely, hæmorrhage. By this step ligaturing, the uterine artery is met half or three-quarters of an inch above the fornix, and can be securely ligated so that the rest of the operation can be done with comparatively little loss of blood. The other danger which we have to encounter is sepsis, as we have to do with a carcinoma whose surface is always decomposed and septic. Besides doing the usual and necessary clean operating, Leopold proposes that we should not antevert or retrovert the uterus, but take it out without any of these procedures. Fritsch advises to leave the posterior fornix closed when we antevert, so that the carcinomatous surface cannot be turned up into the peritoneal cavity and come in contact with the organs there.

As to the treatment of the peritoneal and vaginal wound, there are also a great variety of methods. It seems that for after-treatment packing with iodoform gauze is much more convenient and much less troublesome than a drainage tube, as the iodoform gauze can be left in for a week or more without being removed, and then the after-treatment is over.

Dr. Nelson: I would like to ask Dr. Fenger in regard to the removal of the ovaries and tubes, whether they are likely

to produce disagreeable results in the after-history of the patient by being retained. I can understand full well the desirability of leaving as many organs and as much tissue as can be left, but would raise the question of the desirability or not of removal of the ovaries and tubes when the uterus has been removed.

Professor Fenger : In answer to that question, I would say that it is remarkable what little trouble has been reported from the cases where the ovaries and tubes have been left. There are a few cases, one of Schroeder's, where the menstrual molimina from the organs left has caused the patient trouble. In another case the ovary, or a piece of it, which had been left, was imbedded in the cicatrix, and caused afterwards, according to the opinion of the operator, periodical pains. Brennecke says that he has come to the conclusion that it does not do any harm to leave the ovaries and tubes in. He says that the ovaries atrophy; that some of his patients have had slight molimina in the first three to six or nine months after the operation, and after that time the symptoms from the ovaries have always entirely ceased. That is all I know about this question. But as we get towards the end of the operation it is hard on the patient and hard on the operator, and I feel like doing as little additional operating as possible, and if I can leave the ovaries and tubes without doing the patient any harm it is preferable to do so, as the operation in many cases is a severe one on account of the liability of the patient to collapse towards the end of the operation, which lasts for an hour and a half to two hours. So until I can do the operation much quicker I should prefer to leave the ovaries and tubes in.

Dr. Merriman : Is there any danger of including the ureter in this operation, of injuring it in any way?

Professor Fenger : Yes; there is danger, inasmuch as it has been done, although very rarely. When the ligaturing of the broad ligaments has been done step by step, so that the uterus can be drawn down, then

the ureter stays up, so that the final ligature of the broad ligaments is not likely to include the ureter.

Dr. Merriman : He draws the bladder down with it, the uterus and bladder not being disconnected, and I should think there would be great danger of including the ureter in some of the operations.

Professor Fenger : Even if the ureter is caught with the bladder when the uterus is made movable and drawn down, the ureter stays up.

Dr. Nelson : Is it customary with the majority of operators to curette and to thoroughly disinfect the carcinomatous ulcer before beginning the operation, immediately before, or is it done several days before, or is it done at all?

Professor Fenger : I think it is done several days before by some; for instance, by Hegar and some others. Fritsch and Leopold do it at the beginning of the operation. After the curetting, the surface is disinfected by a strong solution of chloride of zinc or a strong carbolic-acid solution. I prefer to postpone it to the beginning of the operation, so as not to have the patient disturbed with an additional operation, with some loss of blood.

Dr. Merriman : Supposing there was a case of cancer that had gone beyond the cervix into the tissue posterior to the uterus, invading the vagina and extending along down on the anterior side, but there was nothing anterior to the uterus, would it be safe, in a case of that kind, to undertake the operation of extirpation?

Professor Fenger : I think I should refuse. I think the benefit to the patient lies in operating early; and as soon as a portio carcinoma has gone over onto the wall of the vagina to any extent I think the prospects of a radical cure are very small, and that the patient is just as well off with symptomatic treatment, curetting, etc. I think the aim of the operation should be a radical cure, and that extensive operating is being done away with more and more, and only limited cases regarded fit for operation.

It is generally accepted as a law in the surgery of the mammary gland that no matter how localized a small carcinomatous nodule may be, nothing less than the removal of the entire gland, and I would regard it safe to add, the lymphatics of the axilla, would be the safe operative procedure to adopt. It can thus be understood that authors who believe in a low mortality for the vaginal hysterectomy — Sänger, Leopold, Fritsch — require this operation to be done in all cases of limited carcinomas, even small carcinoma of the vaginal portion, to the exclusion of any of the partial operations.

Fritsch calls attention to the fact that a strict demarkation line between carcinoma of the cervix and of the vaginal portion, as Ruge and Veit in their classical article on uterine carcinomas have described it, does not exist in all cases. Some apparent portio carcinomas may extend deeply up into the cervix. It is often not possible during a partial operation, viz., vaginal amputation of the cervix, to determine if we amputate in healthy tissue.

Consequently, for the majority of such cases, the total extirpation is safer as to the radical cure of the carcinoma than a partial operation.

Dr. H. T. Byford: I had the good fortune to successfully operate upon one case in which the uterus looked something like this larger one Professor Fenger has shown us. It was probably an inch longer. The patient was a fleshy, married lady, about thirty years old. The cervix had been amputated a few months before. I ligated the broad ligaments step by step, as recommended by Leopold. I left the abdominal cavity open, except to draw the ligatured parts together, and then packed the vagina with iodoform-gauze for eight days. By mistake one of the iodoform-tampons was left in nearly two weeks, but it did not cause any serious symptoms. As to leaving the peritoneal cavity open, I think there will never be any fixed rule, for that will probably have to be decided by the case.

If the case was one in which there was no such manipulation of the broad ligaments, we would expect some sero-sanguineous exudation, and should not completely close the peritoneal cavity. When we use iodoform-gauze in the proper shape we practically close it up. I do not see the use of sutures. Before there can be any exudation of secretions the peritoneal cavity is closed by exudation. Stitches are only a source of irritation both during and after being inserted. As to leaving the ovaries, it seems to me that in taking out the uterus we take out the larger portion of the sexual nervous system, and produce atrophy of the sexual organs quicker by removing the uterus than by removing the ovaries. It would be almost as superfluous to remove the ovaries after taking out the uterus as to remove the uterus after taking out the ovaries to bring on the menopause. There is one kind of operation that has not been referred to—that is, by leaving compression forceps on the stumps, as is done quite extensively in France and England. When the patient is very weak, it seems to me an improvement to put on these clamps and thus rapidly finish the operation. In regard to the mortality and difficulty of the operation, I think that taking out the uterus is not so very much more serious, though much more difficult, than amputating the cervix. It can not be so safely done so often by the experienced operator, for he is more liable to do something that will endanger the life of his patient. But when the operation is properly performed, the peritoneal cavity being practically closed by the parts being brought together, the patient is left in as good condition for recovery as by a high amputation combined with the cautery.

Dr. J. C. Hoag: I have observed with a good deal of interest an apparent revolution in feeling and opinion in regard to the advisability of this operation. Only a few months ago, in conversation with a number of operators in England, I found the operation was very generally decried, but since

that time, from a perusal of the English journals, one gets a different idea of the opinions of British operators. Some of them did not hesitate to say that in those cases which recovered there was no carcinoma.

In regard to the technique of the operation, I can only speak in the light of what experience I have had in operations on the cadaver, under the instruction of a prominent operator. I was instructed to begin the operation by opening the anterior and posterior culs-de-sac. This certainly seems to be an inferior method to the one described by Dr. Fenger, as affording opportunity for infection of the peritoneum. It has one advantage, however, and that is, it enables one to get his bearings better in regard to the relations of the parts, because one can surround the broad ligaments with the finger and find just where to pass the ligatures, and in this way I think the ligatures can be placed in a more accurate manner. The loss of blood is less, and after the removal of the uterus there is no trouble from hæmorrhage, because it is entirely prevented by the accurately applied ligatures, whereas in the other methods there is often a considerable loss of blood. In a number of cases which I saw, the operation was practically bloodless.

He related the following history of a case of *placenta prævia*.

He said: I wish to refer to a case which I attended recently in which there was one point of interest; it was a case of *placenta prævia* which I saw a few days ago in consultation. I was called early in the morning, and on going to the patient found her in labor, the labor being a little premature by perhaps three or four weeks. She had suffered repeatedly from severe loss of blood during the last three months. At the time I saw her the os was sufficiently dilated to admit one finger only; the periphery of the placenta could be felt through-

out perhaps a fourth of its extent. She was having no particular hæmorrhage at that time, but had been flowing all night. I endeavored a few hours later to introduce a Barnes dilator, but failed because the cervix was very unfavorably situated, being so far back in the cervix that it was impossible to introduce even a small dilator. I introduced a colpeurynter and left it for three or four hours, by which time the os was found to be pretty well dilated, and the remainder of the management was left to the other physician at his request, as he had not previously attended one of these cases. By external manipulation, palpation and auscultation, I had no difficulty in finding the exact location of the feet; the other physician introduced his hand and with little effort was able to pass it into the uterus; he seized the foot through the membranes, but had great difficulty in holding it. There was a good deal of difficulty in rupturing the membranes. I tried it before the introduction of the colpeurynter, but gave it up and advised the physician to rupture the membranes whenever he could do so. He soon succeeded in doing this, and the case offered no difficulties afterward. There was very little loss of blood. The patient was afterwards given two antiseptic douches per day, and has done very well since. The child is living.

DISCUSSION.

Dr. Merriman: How much hæmorrhage was there after you introduced the colpeurynter?

Dr. Hoag: Very little.

Professor Earle: Did she get an intra-uterine douche immediately after the operation?

Dr. Hoag: Yes, immediately; before the colpeurynter was put in and after the delivery of the child, and she has had no temperature above 99° F.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

LONDON, Thursday, Dec. 8, 1887.

J. W. Hulke, F.R.C.S., F.R.S., President,
in the Chair.

An Unusual Complication after Subconjunctival Tenotomy of the External Rectus.

—Dr. A. Emrys-Jones, Manchester, read this paper, relating to a little girl aged 10, in whom both internal recti were divided for alternating convergent strabismus. Immediately after division of the left rectus there was profuse hæmorrhage into Tenon's capsule, leading to well-marked proptosis. A firm bandage was applied, but two hours later the proptosis was more marked, the pupil was widely dilated, inactive to light, and perception of light very doubtful. The optic disc was very pale. From this time rapid improvement took place, and recovery was eventually complete.

Persistent Hæmorrhage in the Anterior Chamber after Iridectomy for Chronic Glaucoma.—Dr. Emrys-Jones also read this case:

The patient was a man aged 63, whose right eye was almost blind, and with + 1 tension; in the left eye, vision $\frac{1}{8}$, and the field of vision much contracted. The optic nerve was cupped. Iridectomy was performed on October 24, 1882. Free hæmorrhage followed, and the next day the anterior chamber was full of blood, and no trace of iris could be detected anywhere. There was scarcely any improvement in a fortnight. One month after operation the hæmorrhage had subsided considerably, and the outline of the pupil could be detected. The improvement was excessively slow, and it was not until December 16th that an ophthalmoscopic examination could be made, when the vitreous was found to be clear and the optic nerve much cupped. There was cardiac disease, and the patient died on January 17, 1883, from double pneumonia. Mr. Haynes Walton had written something about this condition in his

book when treating of injuries to the eye from mechanical causes.

The President asked what method of subconjunctival tenotomy had been adopted in the first case; he could not recall any similar occurrence. In the second patient the case was one of persistent hæmorrhage, the blood retaining its color, as was sometimes seen in diabetic patients.

Mr. Adams Frost and Mr. Ernest Clarke had met with cases exactly like the one recorded in the first paper, the latter speaker suggesting that division of the tendon too near its insertion was, perhaps, the cause.

The President pointed out that the object of Von Graefe's operation was to divide the tendon as close to the globe as possible.

Mr. Lawford had seen one case in which severe hæmorrhage had followed tenotomy, leading to proptosis and duskiness of the lips. The patient, a boy, went on well at first, but subsequently had a relapse after a sudden effort.

Mr. Brailey had seen instances of this accident, in one case leading to atrophy of the optic nerve. He had always been inclined to attribute the occurrence to a too free use of the hook rupturing one of the ciliary arteries, and he considered Von Graefe's operation very unlikely to lead to such an accident.

On Congenital and Hereditary Defect of Ocular Movements.—Mr. Lawford read notes of four cases which had been under his care at St. Thomas' Hospital. These cases included a father and three of his seven children, the remaining four being unaffected. The three children who were the subjects of this congenital defect were numbers 2, 4, and 7. In all four patients there were present the following symptoms: Almost complete bilateral ptosis, loss of upward and downward movement of the eyeballs, and very defective lateral move-

ment. Visual acuteness and accommodative power were good, and there were no ophthalmoscopic changes. None of the patients presented any other congenital defect, and they were healthy in every other respect. He referred to published records of similar cases, in some of which *post-mortem* examinations had been obtained, and drew attention to the fact that the ocular muscles, and not their nerves, were the structures at fault. These muscles had, in some instances, been absent; in others, though present, they were occasionally ill-developed, and generally shorter than the average measurement, while in almost every case their insertions into the sclerotic were displaced more or less backwards, the greatest degree of displacement being 2.5 mm.

The President said that it was difficult to say whether the muscles were primarily at fault, or whether there was defective innervation of muscles; disease in early life might produce such effects.

Mr. Quarry Silcock supported the last idea, and related the case of a boy in whom the eyeball was not noticed to be fixed till the age of three years, and after a general illness which might have been infantile palsy, with a localization in the eyeball muscles.

Mr. Henry Power spoke of the solidarity between nerve and muscle; the condition might be looked upon in some cases as a reversion to an earlier type; turtles and other reptiles had little movement, and perhaps some mammals might show an absence of the levator.

Dr. Angel Money objected to the principle of so-called reversion to an earlier type, and preferred to speak of an arrest of development.

Mr. Brailey said that the development of the ocular muscles was not known; he did not think the reversion theory would hold good in the present instance.

Dr. Seymour Sharkey and Mr. Doyne thought that the term reversion was a useful one.

Living and Card Specimens.—Mr. Silcock showed a case of exostosis arising from the inner side of the orbit; sight had been early affected and was almost completely lost.

Mr. Hulke thought an exploration should be made; in one case in his own experience the tumor proved easy of removal.

Mr. Henry Power had had considerable difficulty in removing an exostosis from the roof of the orbit.

Mr. Nettleship, in reply to Mr. Silcock, said the sight failed after the proptosis had been present one year.

Mr. Spencer Watson considered exploration would be necessary; but caution should be used not to employ too much force in chiselling, etc.

Mr. Gunn: A peculiar foveal reflex in connection with amblyopia and myopia.

Mr. Nettleship showed an ophthalmoscopic drawing from a case of night blindness, with white dots scattered over the fundus. A discussion followed relative to whether these spots were identical with those seen in Tay's choroiditis.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

STATED MEETING, OCTOBER 28, 1887.

President J. Perrigo, M. D., in the Chair.

DR. JOHNSON exhibited (1) a microscopic section of a nail showing parasitic onychia, which had been sent to him by Dr. Bell. The chains of trichophyton were seen in moderate numbers in the deeper layer of the nail and between the nail and its bed.

DR. BELL gave the following history of the case: Miss E., aged twenty, in scraping the back of her thumb nail about a year ago, cut through it about the middle. A light brown spot developed at this point and gradually extended to its free margin, and then began to grow backwards towards the matrix. It was painless. When seen the anterior two-thirds of the nail was dull and dry-looking, yellowish-brown in color, and raised from its bed at the free anterior margin to the extent of nearly half an inch. The tissue between the nail and its bed, at the margin, was quite dry and cancellated, resembling the cancellated structure of a dry bone. The nail was removed by slitting down the center and removing the two portions separately. This cancellated structure was separated from the nail-bed by a thin fibrous layer, beneath which the nail-bed was absorbed. Owing to its peculiar appearance the nail was macerated and sections cut through the diseased part. On examination, there showed in considerable quantities the mycelium and spores of the trichophyton, resembling the fungus as seen in tinea circinata rather than as usually seen in *T. tonsurans*. There was no history of tinea on this patient's skin, nor, as far as she knew, on other members of her family.

Broncho-pneumonia.—(2) A microscopic section through the lung of a sheep in a case of broncho-pneumonia, where great numbers of the embryos or strongylus filaria were found in the alveoli, which were

filled with exudation, and there was severe bronchitis and peribronchitis of the smaller tubes. The adult forms were not found within the bronchi, having probably been coughed up. The embryos are not able to develop beyond this stage in the lung.

Amputation of the thigh.—DR. BELL exhibited a patient whose thigh had been amputated for periosteal sarcoma. The specimen had been exhibited at a previous meeting. The patient was eighteen years of age, and at the time of the operation had been in a very low state of health. His temperature ranged from 100° F. to 103½° F., his pulse from 120 to 140 per minute, and he was greatly emaciated. Amputation was performed by the circular method, about two inches below the base of the trochanter major, on the 3d of October, and from that time his condition improved rapidly. His temperature remained steadily at 98½°, and he rapidly gained flesh. The dressing was changed once only, on the eighth day, and removed on the twenty-fourth day after the operation, when the stump was perfectly healed.

Osteotomy for bow-legs.—A child, three and one-half years of age was shown to the Society, on whom Dr. Bell had performed double osteotomy. The condition was the result of rickets, from which the child had perfectly recovered. The operation had been performed by MacEwen's method, and had resulted very favorably. Photographs were shown of the child's legs before the operation.

Discussion.—DR. RODDICK referred to the good results obtained by Dr. Bell in using bone drains. His experience with this mode of draining was not so favorable, as he found that the bone drains were too rapidly absorbed. While he congratulated Dr. Bell on the excellent results obtained in his operation for bow-legs, yet he could

not agree with the necessity for the operation. Dr. MacEwen, who introduced the operation, does not recommend its application in patients under nine years. He (Dr. Roddick) had obtained quite as good results from the use of mechanical contrivances in children even older than the patient. He thought that in most cases subcutaneous fracture is to be preferred to osteotomy, as it is a less serious operation, and offers less risk. While opposed to operations in most of these cases of deformity, he thought it was more frequently demanded in knock-knees than in bow-leg, as the former requires much longer and more painful treatment.

DR. SHEPHERD said that in one of the few times when he had used bone drains, he found the patient's temperature had risen and the drain plugged with a clot. He always prefers using rubber drains, which he cuts down to three-quarters of an inch at the end of twenty-fours. In Germany the "single-dressing" mania often results disastrously to the patient. In German hospitals he was frequently shown single-dressing cases where the temperature chart indicated an unhealthy condition of the wound. He had seen Dr. Bell's patient before the operation, and he could heartily congratulate him on the success. With regard to the osteotomy case, he referred to the erroneous but common opinion that all cases of bow-legs result from rickets. The peculiarity is often hereditary, and is quite normal in many of the anthropoid apes.

DR. ARMSTRONG referred to Dr. Levis' system of drainage. He uses solid rubber strings placed side by side, instead of tubes, thus obviating the danger of plugging.

DR. GURD said he had seen very good results from treatment of bow-legs by improving the general health. He had great faith in the efficacy of good hygienic surroundings and the use of tonics in such cases. Instruments have proved unsatisfactory.

DR. BELL, in reply, stated that the

drains used were made from chicken bones, by the method recommended by Dr. MacEwen, of Glasgow. These could be obtained as hard or as soft as desired. In the case of osteotomy, the curve in the child's legs was greatest just above the malleolus, so it could not be treated by subcutaneous fracture.

Notes on acetanilide.—DR. MCCONNELL first briefly stated what was known about acetanilide or antifebrin up to the present time. It is procured from aniline acetate, is a white powder resembling santonin, insoluble in water, but soluble in alcohol. It is neither alkaline nor acid, and resists the majority of re-agents. It belongs to the order *Phenylacetamides*, quite different from the orders containing the majority of antipyretics, viz., the Phenols and Chinolins. Actions claimed for it are that it rapidly reduces the temperature in febrile states, without producing any untoward effects; that it is also hypnotic and analgesic, being especially useful in relieving pain linked with nerve alterations. In poisonous doses it will destroy oxyhæmoglobin, changing it into methæmoglobin. It is inexpensive, being only 10 francs per one kilogramme in France. He had used it in about twenty cases, of sixteen of which he had records—nine were cases of typhoid fever—in all of which the temperature was promptly reduced.

Discussion.—DR. PROUDFOOT had used acetanilide in painful affections of the eye, such as iritis and glaucomata, in doses of ten to fifteen grains. He found it reduced the temperature and relieved the pain almost instantly. If the pain was not relieved in one hour, he usually repeated the dose.

DR. STEWART said he had very little experience in the use of the drug. He had, however, administered it in five-grain doses to relieve the lightning pains of locomotor ataxia, and found it very efficient. He regarded it as dangerous to give powerful drugs in fever cases to reduce temperature, as these act on the oxyhæmo-

globin, thus reducing the patient's powers of resistance.

DR. REED stated that from Dr. Charcot's recommendation he had used it, but had not been able to relieve pain. He had found it to reduce the temperature for a time, though not sufficiently to encourage him to continue its use.

DR. PERRIGO said that the drug failed entirely in a case of malaria, in which he had tried it.

DR. RODDICK congratulated Dr. McConnell on his finding something to relieve the distressing headache of typhoid. He had given it in a case of erysipelas, but it had no effect on the temperature.

DR. BLACKADER had also administered

the drug in erysipelas with very little effect. The German authorities state that it is without effect in scarlet fever and erysipelas. He thought, however, that the anodyne properties of the drug would keep it in the pharmacopœia.

In reply to remarks of Dr. Stewart, that its action on oxyhæmoglobin was an objection to its use, Dr. McConnell said that this only occurs to any appreciable extent when over-doses are taken. The antipyretic action is almost altogether exerted through the nervous system, and chiefly the vaso-motor. The want of effect in cases referred to by Drs. Reed and Perrigo was probably owing to its having been administered in too small doses.

MEDICAL SECTION OF THE ROYAL SOCIETY OF NEW SOUTH WALES.

Meeting held in the Society's Rooms, Sydney, on August 19, 1887.

Members present: Dr. Sydney Jones, President, in the chair, Drs. Knaggs, Skirving, Goode, Ross, Faithfull, Chambers, Chisholm, Cragi, Power, Milford, Hankins, Lyden, Martin, Worrall, Brady, Twynam, Clune, Fiaschi, Garrett, MacLaurin, Mander Jones, Ellis, West, Anderson Stuart, and MacCormick and Jenkins (Hon. Secretaries.)

Dr. Knaggs exhibited for Dr. Roth a new spirometer and dynamometer, and explained the mechanism of both.

Dr. Sydney Jones regarded these instruments of little practical value in individual cases, but useful when statistics of large numbers of cases were kept, as tending to show the physique of a nation.

Drs. Milford, Garrett, Faithfull, Crago and Skirving, remarked that neither instrument was made use of in the insurance societies of which they were the medical officers.

Dr. Chambers then exhibited specimens:

- (1) Hair-pin from urethra of girl aged 13. The hair-pin was inserted by the girl, and voided without surgical interference.

- (2) New growth from "vulva," removed by Paquelin cautery. Of doubtful nature, but probably epithelioma or condyloma.

- (3) *Uterine Fibroid*, from a woman aged 42. The whole uterus and appendages were removed, and the patient made a perfect recovery. A small intra-uterine polypus protruded through cervix. The difficulties in diagnosis were many and great before the operation.

Dr. Brady gave history of a child with stone in bladder formed round a pin. The child was only three years old.

Dr. Garrett exhibited the middle finger of his left hand, and the forefinger of his right, both in a condition of dry gangrene from accidental application of pure carbolic acid.

Dr. Goode related a similar case from a 1 in 20 solution of carbolic lotion, and Dr. MacCormick made some remarks on the anæsthetic and caustic action of carbolic acid, and the necessity of using warm water for diluting it.

Meeting held on September 16, Dr. Sydney Jones in the chair. There were also present: Drs. Twynam, Chisholm, Goode, Waugh, Mander Jones, Faithfull, MacCulloch, Quaife, MacCormick, Jenkins, Sir Alfred Roberts, Brady, Worrall, Garrett, Skirving, Fiaschi and Caruthers.

The minutes of previous meeting having been read and confirmed,

Dr. Twynam read papers on two cases of amputation at the hip joint, and both patients were exhibited. One excited great interest, as the diseased bone which necessitated the operation was caused by caisson fever, contracted March 6, 1882, the patient working under a pressure of 45 pounds to the square inch.

Sir Alfred Roberts made some remarks, having seen the patient in the interest of the Government some time back, and that then there was exquisite tenderness over the right thigh, muscular pains, lung troubles and great deviations in the temperature.

Dr. Jones also joined in the discussion, and congratulated Mr. Twynam on the successful issue of his cases.

Dr. MacCulloch exhibited a patient with a marked curvature of left tibia. There had been a previous fracture of the fibula, but no fracture of the tibia. The bending commenced some considerable time after the accident. Drs. Brady, Waugh, and MacCormick joined in the discussion.

Dr. MacCormick exhibited a small piece of bone tipped with cartilage that he had removed from the knee joint.

Dr. Sydney Jones exhibited a peculiar growth he had removed from the anterior bone of axilla, "an epithelial growth, with colloid degeneration."

Drs. Twynam and Skirving joined in the discussion.

Meeting held on October 21, 1887. Present: Dr. Sydney Jones in the chair, Drs. Blaxland, MacAllister, Faithfull, Kendall, Ross, Roth, Anderson Stuart, Garrett, Crago, Lyden, Waugh, Theophilus Jones,

Chisholm, Goode, Deck, Knaggs, Hankins, Twynam, Worrall, Brady, Power, Wright, Phillips, MacCulloch, Fiaschi, Quaife, MacCormick, and Jenkins.

Dr. Chisholm read notes on a case of gastrotomy, and exhibited the patient, who fed himself through a glass funnel with milk. The true cause of the œsophageal stricture was obscure.

Dr. Hankins gave history of three cases of gastrotomy, two in adults, both of whom died, one from symptoms of peritonitis, and the other from inanition; and the third, a child. The smallest bougie could not be passed. The first stage of the operation was performed, and then a No. 1 catheter was passed, and it was found unnecessary to perform the second stage.

Drs. MacCormick, Brady, Anderson Stuart and Sydney Jones, joined in the discussion.

Dr. Waugh then exhibited a case of vicious union of the tibia—the lower half of tibia and fibula set at right angles to upper half. He was treated in the Melbourne Hospital, but left three weeks after admission, and was warned of the dangers.

Dr. Goode read a paper on a case of "Excision of the Rectum," and showed the case. Drs. Twynam and Sydney Jones made remarks as to the benefits of the operation, the methods, the prevention of bleeding, etc.

Dr. Sydney Jones then read, for Dr. Mander Jones, a paper on a case of "Intestinal Obstruction" in a woman aged 22, following inflammation after abortion. Dr. Sydney Jones opened the abdomen, and found the obstruction due to a dense band connecting the ileum and colon, with a mesenteric gland involved. The adhesion was cut through, and the patient made an excellent recovery. Drs. Ross, Crago, MacCormick, Twynam, and Worrall joined in discussion, the latter urging immediate operative interference in cases with urgent symptoms.

Dr. Sydney Jones replied.

Dr. Goode exhibited—

- (1) Strangulated femoral hernia.
- (2) An enormous fatty tumor.

FOREIGN CORRESPONDENCE.

To the Editor of the Chicago Medical Journal and Examiner:

THE NEW PRODUCT.

The fact that a substance two hundred and twenty times sweeter than sugar is abstracted by an abstruse series of chemical processes from such an uncleanly looking product as coal-tar, seemed, when first bruited, a flight of imagination, and not worth being considered as a commercial reality. But such it has become. *Saccharine* is not now only a pretty laboratory experiment, as it was first thought to be. It was even stated that for commercial and domestic purposes it was impossible. To chemists now *saccharine* as a commercial product is a fact, pure and simple.

Saccharine has sweetening properties, but it is not sugar. It will sweeten but not fatten; it has no action whatever, as far as yet ascertained, upon the human system. Professor Stotzer, of Bonn, has conducted a variety of experiments upon animals, and affirms that the effect is *nil* on the canine system, although as much as would equal a pound of sugar has been administered daily. However, on the other hand, it is a pure chemical compound, and, it is said, may in time produce certain changes, especially in the liver.

It is made from the toluene of coal-tar, which is first treated with sulphuric acid in closed vessels rotating on horizontal axes. After the toluene has disappeared, the contents are run off in tanks, cold water and chalk being added. The product then contains calcium, ortho- and para-toluene sulphonates. This again is treated with carbonate of sodium and allowed to cool after the sodium salts have evaporated. The dried sulphonates then undergo a mixing with phosphorus tri-chloride, placed in lead-lined vessels, and chlorine is passed over the mixture. The oxy-chloride

is driven off and phosphate of lime precipitated. When the sulpho compounds are cooled, crystals of para- and liquid ortho-toluene sulpho-chloride appear, the latter of which, only, is capable of yielding saccharine.

The liquid is then treated with solid ammonium carbonate, and subjecting the mass to the action of steam, which sets the carbonic acid free. Permanganate of potash is added to oxidize it, and precipitation takes place by adding hydrochloric or sulphurous acid—the true *benzoic sulphinide* is formed.

It is stated that one grain will sweeten a cup of tea or coffee, and the most nauseous compound is made palatable by its use.

A NEW SYSTEM OF TREATMENT.

It is again asserted from Vienna that the Crown Prince of Germany has for some weeks been under a new system of treatment. That new treatment is based upon investigations of Dr. Ernest Freund, a Vienna disciple of Professor Ludwig. Dr. Freund, it is stated, began to devote himself specially to the study of cancer in 1885. He has published a treatise based upon seventy different cases of carcinoma, in all of which he found the chief characteristic to be an abundance of sugar in the blood, and he even fixed upon a certain relative quantity of sugar in the blood, as the condition for the formation of carcinomatous cellules. From such a theory it follows that patients suffering from cancer should abstain from all sugar-forming foods, and, in addition, Dr. Freund uses a medicament for the oxidation of superfluous sugar in the body. It is stated that this treatment is now being tried upon the Crown Prince of Germany with satisfactory effect, the growth in the larynx showing a constant tendency to diminish.

CANCER AND VACCINATION.

The following table, which has recently been compiled, will show the strides made by cancer in England and Wales concurrently with the extension of vaccination, which was first made compulsory in 1853.

Deaths from Cancer in England and Wales.

Decades.	Deaths.	Mean Annual Mortality per Million Living.
1851-60	60,196	317
1861-70	82,371	387
1871-80	114,405	473
1881-84 (4 years)	57,411	535

M. PASTEUR'S NEW SUGGESTION.

M. Pasteur, I see, has come forward with a suggestion for the abolition of the Australian rabbit plague. He says that the best way to get rid of the rabbits is to create among them some disease which will spread among the animals; that it is of no avail to confine operations to methods by which one rabbit has to be killed at a time, but the rabbits themselves must help in their own extermination, so to speak. M. Pasteur's idea is to sprinkle water previously mixed with "microbes of chicken cholera" near the burrows or the run of these rodents. He thinks that the rabbits in this way would be certain to get the disease, and all others would be infected by it. Chicken cholera, he states, is fatal to rabbits. The poultry must be kept clear of these infected spots.

SYSTEM OF ISOLATION.

London may at last feel reasonably confident that the epidemic of scarlet fever which existed during the summer months has exhausted its violence. London has utilized in the outburst of scarlet fever the buildings provided by the *Metropolitan Asylum Board*. This board has let it be understood that a refuge was ready for any who could not, with safety to themselves or to others, be nursed at home. It has been demonstrated here that isolation is the specific for the abridgement and the extinction of an epidemic of scarlet fever. It has been found that isolation in a room,

or a couple of rooms, crowded with inmates, is unattainable.

By the establishing of a number of hospitals for the treatment of scarlet fever, the public began to see the advantages, both to the sick and the well, of the excellent nursing and judicious treatment.

Many patients of the well-to-do classes are known to have entered these hospitals. Had the old condition of things existed London would now, no doubt, still be a fever-stricken city, as relatives, friends, attendants and fellow lodgers would have been perpetually distributing the contagion.

WOOL-SORTER'S DISEASE.

The following brief history of two recent cases of anthrax, or "wool-sorter's disease," may prove interesting to your readers.

CASE I. The patient, a male, 40 years old, was admitted to Guy's Hospital, complaining of feeling sick and of having a small pimple on the back of his neck, which was troublesome. He stated that he was employed at London Wharf to assort hides, etc. The small pimple had become greatly enlarged in the space of twenty-four hours, involving the glands of his neck, which were much swollen. The house-surgeon stated that on careful examination of the patient it was discovered that he was suffering from a malignant pustule on the neck, or, as it was known in the leather trade, "wool-sorter's disease." The patient sank rapidly, and died on the fourth day after his admission to the hospital.

Microscopical examination of the blood being made, it was established that the patient died from anthrax.

CASE II. The wife of a wool-sorter called to consult her physician for a swollen condition of the lids of the right eye. There was noticed on the right cheek, about an inch and a half below the eye, an inflamed spot about the size of a pea. This spot or pimple was very annoying, on account of a constant itching. She had

no pain and did not feel ill. Her temperature was normal, but the pulse was rapid. She was visited by her physician at her house, accompanied by a consultant, on the evening after her morning visit.

The swelling had extended downward to the ear and jaw, upward and forward across the face, slightly towards the left eye. She complained of dizziness, and said she felt the blood rushing to her head, and was somewhat delirious. Her pulse, temperature and respiration were nearly normal. She was seen again the next morning, when she stated that she had passed a good night, had slept well, and felt no pain. The swelling had extended over the face generally. On the second day from her visit to the physician, her pulse was found to be varying—when lying in bed it was 96, when erect, 116, and after trying the vomit it went up to 144. The swelling had by this time extended over the head and around the neck. She complained of a choking sensation, and said she felt very tired. On the third day marked improvement appeared to have taken place in her general condition; there was some diminution of the swelling. The physician was summoned on the morning of the fifth day, and found her in a dying condition. This was the last time he saw her alive. The foregoing history of the case was kindly furnished me by her medical attendant, to whom I am also indebted for an invitation to witness the post mortem, which was held thirty-four hours after death. Externally there was

a deep purple discoloration of the face, neck, and upper part of the chest, extending down the arms to the elbow joints. The fingers, limbs, and feet were of a dark color. The head, face and front part of the chest were much swollen. The right cheek and eyelids, when stripped of the skin, presented a grayish appearance. On opening the chest, the lungs were found adherent to the chest walls. There was nearly a pint of clear fluid in the pleural cavities. The lungs were of a darker color than natural. Except the spleen, the internal organs appeared healthy. The spleen was enlarged and "pulpy." The blood was very fluid and of a purplish color. On examination of specimens of the blood from the body there were found specific organisms characteristic of anthrax.

The deceased had always appeared to those who were acquainted with her to have been a strong and healthy woman. From the statement made by the patient, the poison was thought to have been inoculated into the spot on the cheek not more than ten days before her death.

Is it not possible that what has been effected in the case of the lower animals, as by Pasteur's inoculation, may ultimately be applied to the saving of human life? Is there any reason why inoculation with attenuated solutions may not be advantageously practiced upon those persons whose duties require their frequent handling of hides, wool, ect.?

WM. B. MEANY, M. D.

LONDON, ENGLAND.

EXTRACTS FROM THE REPORT OF THE SURGEON-GENERAL,
UNITED STATES ARMY, 1887.

The money value of the medical and hospital supplies actually issued during the fiscal year ended June 30, 1887, was \$159,366.95, and the cost of the supplies required for issue during the current fiscal year will undoubtedly exceed that amount. I base the estimate of the probable cost of the medical and hospital supplies which will be required for issue during the present fiscal year on the fact that the average money value of medical supplies issued annually during the fiscal year July 1, 1876, to June 30, 1887, was approximately \$177,515.78, exclusive of all other expenses.

In this connection, I respectfully invite your attention to my estimate of appropriations required by the medical department of the army for the service of the fiscal year ending June 30, 1889, submitted to you on the 15th ultimo, as follows:

For the purchase of medical and hospital supplies, including disinfectants for general post sanitation, expenses of purveying depots, pay of employes, medical care and treatment of officers and enlisted men of the army on duty at posts and stations, for which no other provision is made; for the proper care and treatment of cases in the army suffering from contagious or epidemic diseases; advertising, and other miscellaneous expenses of the medical department (the amount to be expended for pay of employes not to exceed \$38,000), \$220,000.

For medical and hospital supplies for the army and navy hospital at Hot Springs, Ark., \$4,000.

The estimated amounts will, it is believed, be necessary to meet the wants of the medical department for the purposes stated for the ensuing fiscal year. It becomes necessary from time to time to add to the standard supply table new remedies, new instruments, and new standard medical books, and provide them for use by medical officers of the army in the proper diagnosis and treatment of disease.

The limited number of contract surgeons allowed by law necessitates the employ-

ment of private physicians, under existing regulations, to furnish medical attendance to officers and enlisted men at stations where there is no medical officer of the army. These physicians are paid by the visit from the "medical and hospital appropriation." Added to this, is the necessary expenditure for the employment of skilled nurses for the proper care and treatment of cases of epidemic and contagious diseases.

I respectfully recommend, as specified in estimate submitted, that the limit of amount of the appropriation to be expended for the pay of employes of the medical department be increased to at least \$38,000.

I have the honor to renew my recommendation made in my last annual report that, in order to facilitate the purchase and delivery of medical and hospital supplies, and for the best interests of the service, with a view to economy, Congress be requested to grant authority in the purchase of medical and hospital supplies which cost less than \$500 to make such purchases, after due advertisement for bids, without entering into a formal written contract. In many instances, a strict compliance with the letter of the law and existing regulations in preparing the formal executory contracts, five copies of which are required, entails an expense to the government in clerical time and labor fully equal to the cost of the article for which the contract is made. It is not believed that such was the intention of the framers of the law relating to purchases of government supplies.

There were furnished during the year:

In kind:

Trusses.....	878
Artificial legs	103
Artificial foot.....	1
Artificial arms	3

By commutation :

Artificial legs	301
Artificial feet	13
Artificial arms	390
Artificial hands	6
Apparatus for legs	343
Apparatus for arms	517

HEALTH OF THE ARMY FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1886.

On account of its small size, and the nature of the service which it is called upon to perform, the Army of the United States is broken up into small commands, which are scattered over a vast territory comprising regions differing widely in physical features and climatic conditions. In studying the influence exerted upon the health of the troops by peculiarities of elevation, temperature, rain-fall, drainage, etc., it is necessary that the country shall be divided into regions, each of which shall be characterized by physical features and climatic conditions distinct from all others, but uniform, or nearly so, throughout its own area. That division which seems most nearly to meet these requirements, and to be the best adapted to the purposes of this report, is a modification of one made by Mr. Henry Gannett, of the U. S. Geological Survey, and used in the compilation of the mortality and vital statistics of the tenth census, and is shown in the accompanying map. The regions are eleven in number, as follows: The Atlantic Coast, Eastern Timbered Plains and Hills, Appalachian, Northern Lakes, Central Timbered Plains and Hills, Alluvial, Gulf Coast, Prairies, Great Plains, Cordilleras, and Pacific Coast.

On account of the great extent, north and south, of some of these regions, they have, for purposes of comparison, been subdivided into groups of posts.

During the year 1886 no troops were stationed in the Alluvial region, which comprises only the swamp lands of the Mississippi and Red river valleys, and consequently no mention is made of it in the succeeding pages of this report.

Under the head of each region is given a brief description of its distinctive features, and a table showing the military stations within its limits, together with the mean strength of command, admissions to sick report, number constantly non-effective, deaths, and discharges for disability for each station, followed by a general consideration of the subject of the health of the troops serving in the region during the year. Following this are given the principal facts in relation to the health of the whole army; the surgical record for the year; vaccinations; the health of colored troops, of Indian scouts, and of civilian attachés; marriages and births at military stations; the special reports of medical officers; and the hygiene of the army.

* * * * *

HEALTH OF THE ARMY AS A WHOLE.

The mean strength of the army for the year, including officers and both white and colored enlisted men, was 23,572, as shown by the monthly reports of medical officers. Of this number 21,430 were white, and 2,142 were colored (of African descent). These figures represent the average number present during each day of the year, with commands from which reports were received by the medical department. But the mean strength of the entire army, as shown by the returns of the adjutant-general, was considerably greater than that given above, being 23,737 white and 2,358 colored, or a total of 26,095 men. The discrepancy between the two sets of figures is due to the fact that every officer and enlisted man of the army is accounted for on the returns of the adjutant-general, while the consolidated reports of the medical department show only the strength of the commands from which they are received, and do not include the strength of officers and enlisted men on detached service, and of those commands to which no medical officer is attached, or from which no reports are received.

All the ratios given under the heads of

the different regions are based on the mean strength as shown by the medical reports, and, with the exception of the death and discharge rates, are very nearly correct, because no cases of disease or injury are reported for that portion of the army whose mean strength is not reported also, and the number of cases thus lost probably balances the loss in strength. But in the record of deaths and discharges no such loss occurs, for all must, of course, be reported from one source or another; so that these two ratios, as stated for the several regions, are somewhat too high, because they are based upon the mean strength reported by medical officers, which, as above stated, is somewhat less than the actual strength of the respective commands. For the different regions, however, no other strength than that given in the medical reports is at hand, and consequently it has been necessary to use this strength in calculating *all* the ratios for these regions; but for the whole army the mean strength as shown by the adjutant-general's returns is available, and has been used in computing the rates of *death and discharge*. For all other ratios the mean strength shown by the consolidated reports of the medical department is used, and not that of the adjutant-general, which would make these ratios too low, for reasons indicated above.

The Indian scouts employed as auxiliaries to the regular troops averaged for the year 310, but they have not been included in the mean strength of the army or in calculating

any of the ratios given in this report for the reason that they have so little in common with the regular troops in respect of their surroundings, habits, manner of living, duration of service, etc., that no comparisons of any value can be made concerning them; and when sick they so rarely come under the observation of medical officers that the reports of commands to which they are attached furnish but little or no information relative to the amount and character of sickness among them.

The rate of constant non-effectiveness was also lowered this year, being 39.4, while that for the previous year was 41.1, and for the preceding decade 44 per 1,000 of mean strength. The average loss of time on account of sickness for each man in the army was 14 days against 15 for 1885, and 16 for the preceding decade.

The death rate was 8.8 per 1,000, being higher than that for 1885, which was 6.9, an exceptionally low figure; but it was, however, considerably lower than the rate for the previous decade, which was 11.4.

COMPARISON WITH FOREIGN ARMIES.

The following table shows a comparison of the more important ratios bearing upon the health of the Army of the United States with the same ratios for certain foreign armies. In compiling these statistics the latest reports received have been used, and in all cases only the strength actually present with the colors has been considered:

Army.	Mean strength.	Ratio per 1,000 of mean strength for—						Sick-time to each soldier.	Average duration of each case of sickness.
		Admissions.			Deaths.	Discharges for disability.	Constant non-effective force.		
		Hospital or infirmary.	Quarters.	Total.					
United States (1886).....	23,572	546	717	1,263	8.8	24.9	39.4	14	11
United States (1876-85, yearly average).....	23,805	.....	.....	1,672	11.4	32.2	44.0	16	10
Belgium (1885).....	46,017	1,525	.....	1,525	5.3	10.6	30.0	11	7
Great Britain (1884).....	167,686	1,092	.....	1,092	8.4	18.0	56.4	21	19
France (1878).....	440,614	554	2,016	2,570	9.1	13.7	46.6	17	7
Italy (1881).....	191,366	923	.....	923	10.6	19.4	35.4	13	14
Prussia and Württemberg (1881-83).....	353,192	324	807	1,231	4.6	27.0	38.8	13	11

SURGICAL OPERATIONS.

There were 152 surgical operations reported by medical officers during the year; 68 of these were necessitated by injuries, and 84 by various surgical diseases. Antiseptics were used in 71 cases after opera-

tions, 21 of which were for shot wounds, and in the treatment of 16 cases of shot wound not operated upon.

The following table shows the number, character, and results of the principal surgical operations performed during the year:

Nature of Operation.	Disease or injury.	Recovered.	Died.	Total.	Remarks.
Removal of tumors.				21	
Sebaceous cysts.		7		7	Scalp, 1; face, 5; neck, 1.
Fibroma.		1		1	Hand.
Lipoma.		6		6	Scalp, 1; cheek, 1; side, 1; back, 3.
Adenoid.		1		1	Neck.
Papilloma.		2		2	Face, 1; genitals, 1.
Epithelioma.		1		1	Face.
Unclassified.		3		3	Face, 2; neck, 1.
Removal of foreign bodies.				9	
Bullet and shot.	Shot wounds.	9		9	Flesh wounds, 7; fractures, 2.
Opening of abscesses.				3	
Perityphlitic.	Perityphlitic.	1	1	2	Incision and drainage.
Lumbar.	Caries.		1	1	Incision.
Operations on nerves.				1	
Stretching of nerves.	Neuralgia.	1		1	Stumps of amputated fingers.
Operations on the eye.				2	
Iridectomy.	Laceration.	1		1	Lodgment of missile.
Excision of the eyeball.	do.	1		1	
Operations on the mouth.				5	
Removal of tonsils.	Tonsillitis.	2		2	
Amputation of uvula.	Elongated, 2; oedema, 1.	3		3	
Operations on arteries.				1	
Ligation.	Incised wound.	1		1	Ulnar; silk ligature.
Operations on veins.				2	
For varicocele.	Varicocele.	2		2	
Operations on respiratory organs.				2	
Paracentesis of pleura.	Pleurisy.			2	Aspiration.
Operations on digestive organs.				17	
For fistula in ano.		5		5	Incision.
For anal fissure.		1		1	Dilation and incision.
For hemorrhoids.		8		8	Ligation, 2; excision, 6.
Laparotomy.	Intestinal obstruction.		1	1	Death on third day.
Paracentesis.	Ascites.		1	2	Not terminated, 1.
Operations on urinary organs.				8	
Tapping of bladder.	Laceration by kick.		1	1	Aspiration.
For stricture of urethra.	Traumatic, 1; gonorrheal, 6.	7		7	Internal urethrotomy.
Operations on generative organs.				14	
For phimosis.		11		11	Slitting, 2; circumcision, 9.
For hydrocele.		3		3	Tapping, 3.
Operations on bones.				8	
Removal of portions of.	Necrosis, 5; shot fracture, 1.	6		6	Maxilla, 1; clavicle, 1; radius, 1; cranium, 1; tibia, 2.
For ununited fractures.	Compound fractures.	2		2	Wiring, 1; splint, 1.
Operations on joints.				6	
Reduction of dislocations.		5		5	Shoulder, 2; elbow, 3.
Incisions.	Abscess.	1		1	Elbow joint.
Operations on muscles.				1	
Myotomy.	Anchylolysis.	1		1	Elbow.
Operations on limbs.				45	
Amputation for injury.				42	
Arm.	Shot wound, 1; compound fracture, 1.	2		2	Primary, 1; intermediate, 1.
Forearm.	Shot wound, 2; compound fracture, 1.	3		3	Primary, 3.
Finger.	Shot wound, 12; injury, 12; frost-bite, 4.	28		28	Primary, 14; intermediate, 4; secondary, 10.
Thigh.	Shot wound, 2; compound fracture, 1.	3		3	Primary, 1; intermediate, 1; secondary, 1.
Leg.	Shot wound, 1; compound fracture, 1.	2		2	Primary, 1; intermediate, 1.
Foot.	Frost-bite.	1		2	Intermediate; double amputation.
Toe.	Shot wound, 1; compound fracture, 1.	2		2	Primary.
Amputation for disease.				3	
Finger.	Abscess.	1		1	
Thigh.	Popliteal aneurism.		1	1	
Toe.	Deformity.	1		1	
Operations on skin, etc.				7	
Closure of wound.	Laceration.			1	Scalp.
Ingrown toe-nail.		6		6	
Aggregate.		144	6	152	1 double amputation; 1 case not terminated.

HYGIENE OF THE ARMY.

By direction of the Secretary of War, on July 15, 1885, paragraph 2315 of the Army Regulations was amended to read as follows :

An important part of the duty of a medical officer of the army is the supervision, under the direction of his immediate commander, of the hygiene of the post or command to which he is attached, and the recommendation of such measures as he may deem necessary to prevent or diminish disease among the troops. For this purpose he shall at least once a month examine and note in the medical history of the post the sanitary condition of the quarters, including all buildings belonging to the post, the character and cooking of the rations, the amount and quality of the water supply, the drainage, and the clothing and the habits of the men, and make a report thereon in writing to the commanding officer, with such recommendations as he may deem proper. If the recommendations be approved and carried out, the medical officer shall note the fact in the medical history of the post. If the action recommended be deemed impracticable or undesirable, the commanding officer shall indorse his objections on the report and forward it to the department commander. A copy of such indorsement shall be furnished to the medical officer, who shall record it in the medical history of the post. A copy of each report, and of the action of the commanding officer thereon, will be forwarded as soon as practicable, through the usual military channels, to the surgeon-general for his information.

The good effect of this regulation is clearly shown by the character of the sanitary reports received from medical officers during the year 1886. Some of these reports, it is true, are merely perfunctory and contain little or no information which is of interest or value, but the majority of them bear evidence of careful and painstaking investigation on the part of the officers making them, and a full appreciation of the great responsibility devolving upon them in connection with the performance of this portion of their duty.

As is to be expected, out of the large number of recommendations made on the great variety of subjects dealt with in the monthly sanitary reports, a few were clearly not practicable, and concerning a few others, differences of opinion arose between

the commanding officer and the medical officer ; but by far the greater portion of the sanitary measures recommended were carefully considered, practical, and capable of being easily carried into effect with the means at command, and it is gratifying to note, the medical officers as a rule received the cordial support and co-operation of their immediate commanders in their efforts to increase the health and comfort of the commands to which they were attached. That these efforts have been attended with a large measure of success is evidenced by the diminished rates of sickness and mortality in the army for the year 1886, as compared with previous years.

Of all the unsanitary conditions reported during the year, that which appears to have been most serious, as well as most widely spread, was found to exist in connection with the privies, sinks, urinals, and other similar conveniences provided for the use of the troops. The cess-pool and privy-vault, or pit, is universally condemned as being a nuisance under any circumstances, and frequently a source of the gravest danger to health, and that they should be tolerated at so many of our military stations, in spite of the well known evils inseparably connected with their use, and in disregard of the repeated warnings and remonstrances of medical officers, is inexplicable upon any other ground than that the mere matter of convenience has been allowed to outweigh all other considerations. At some of the older posts, the privies, especially those of the officers' quarters, have for years been erected over sinks dug in the earth and moved from time to time, as these pits became unpleasantly full, to other locations close by, new pits being dug and the old ones covered over with earth, until, in the language of several of the reports on this subject, the back yards have become literally "honey-combed with deposits of filth." It seems to be urgently demanded that steps should be taken not only to do away with the

evils complained of, but to prevent their recurrence, by the official prohibition of the use at military stations of such methods as are known to be dangerous in the disposal of excrementitious matters and waste of various kinds, and by the adoption, instead, of such system, or systems, as will meet as nearly as possible the differing requirements of different localities, and of modern sanitary science as well.

The lack of proper bathing facilities, not only for enlisted men but for officers, is seriously felt at many posts, and is a subject which well deserves greater attention than it has heretofore received.

FOOD.

With the few exceptions noted below, the food supplied to the troops was reported to be sufficient in quantity, of excellent quality, and usually well cooked. The opinion seems to be quite prevalent among both medical and line officers, serving at southern posts, that bacon should be issued instead of salt pork, for the reason that in those localities the latter is hardly ever eaten by the men, and the saving can only be sold at a very low price, if at all; so that the food value to the soldier of this portion of the ration is greatly diminished. On the other hand, bacon is occasionally relished by the men even in the hottest weather, and that which is not consumed by them always finds a ready sale at a good price, thus augmenting the company or hospital fund, and allowing the purchase of fresh vegetables and other articles of diet not included in the ration; so that the soldier suffers no loss in his food supply, whatever may be the pecuniary loss to the government through the greater shrinkage in weight, and liability to spoil, of bacon over pork.

BATHING FACILITIES.

In many, if not in most, of the older barracks and quarters the provision made for purposes of personal cleanliness of the occupants, in the way of properly constructed bath-rooms and lavatories, is notoriously

inadequate and unsatisfactory, and, in the construction of some of the more modern buildings as well, this most important feature has either not been given the prominence which it deserves, or has been neglected altogether. In but very few of the sanitary reports of medical officers is the statement made that the bathing facilities are adequate and properly constructed, while in many reports, particularly those of western posts, reiterated complaints are made of deficiencies in these respects.

ARMY MEDICAL MUSEUM.

Twenty-one hundred and twenty-three specimens were added to the museum during the year; an increase of 768 over the number added the preceding year. This makes the total number of specimens in the museum June 30, 26,072, classified as follows:

Pathological Section:	Specimens.
In museum June 30, 1886	9,583
Received during the year	255
In museum June 30, 1887.....	9,838
Section of Comparative Anatomy:	
In museum June 30, 1886.....	1,622
Received during the year.....	52
In museum June 30, 1887.....	1,674
Anatomical Section:	
In museum June 30, 1886.....	2,345
Received during the year	607
In museum June 30, 1887.....	2,952
Microscopical Section:	
In museum June 30, 1886.....	9,510
Received during the year	536
In museum June 30, 1887.....	10,046
Miscellaneous Section:	
In museum June 30, 1886.....	346
Received during the year	438
In museum June 30, 1887.....	784
Provisional Section:	
Pathological specimens in museum June 30, 1886	270
Received during the year.....	173
Pathological specimens in museum June 30, 1887	443
Anatomical specimens in museum June 30, 1886.....	273
Received during the year.....	62
Anatomical specimens in museum, June 30, 1887.....	335

The more interesting specimens added to the museum collection during the year ending June 30, 1887, were a series of plaster casts and bony preparations collected by the late Professor F. H. Hamilton, of New York; models of the heart and vessels of various fishes, mussels, etc., prepared by Auzoux, of Paris; skeletons and crania of ancient Laps and Finns; a series of corroded metal injection specimens of the vessels of the kidney, liver and lung, and a series of old microscopes illustrating the gradual improvement in these instruments during the last two centuries.

With the removal of the museum to the new fireproof building will undoubtedly come large accessions of specimens contributed by physicians in all parts of the United States.

The recommendation made in the last annual report that authority be granted by Congress for the publication of an illustrated catalogue of the museum is respectfully renewed. A large part of the manuscript for such a catalogue has been prepared and it will form a work in three large volumes, which will be of great value and interest to the medical profession and will be of great benefit to the museum itself.

LIBRARY.

The following table shows the additions made to the library during the fiscal year :

Description.	On hand June 30, 1886.	Added during fiscal year.	Total, June 30, 1887.
Medical journals.....	24,116	1,261	25,377
Medical transactions.....	3,532	117	3,649
Bound theses.....	1,385	.....	1,385
Bound pamphlets.....	1,331	231	1,562
Other medical books.....	46,368	6,824	53,192
Total.....	76,732	8,433	85,165
Medical theses.....	42,312	3,067	45,379
Medical pamphlets.....	64,419	9,955	74,374
Total.....	106,631	13,022	119,653

There were presented to the library during the year, 375 books and 5,683 pamphlets.

There is urgent need of a large amount of binding for the library, there being now 7,400 volumes unbound, many of which are recent works which are almost daily called for by readers, but which should not be used until they are bound. This accumulation of unbound books is due to the fact that the amount allowed for binding for this office has been insufficient for several years.

INDEX-CATALOGUE.

Volume VIII of the Index-Catalogue, including from "Legier" to "Medicine (Naval)," forming a volume of 1,078 pages, has been printed and the edition distributed to those institutions and persons who have received the previous volumes. The usefulness of this work to the medical writers and teachers, not only of the United States but of other countries, can hardly be overestimated, and it is very desirable that it should be completed as rapidly as possible. The preparation of the manuscript of Volume IX is well advanced, and the first part of it is now going to press.

THE NEW MUSEUM AND LIBRARY BUILDING.

I take great pleasure in reporting that the new building to contain the museum, library, and hospital records, for which there has been such urgent need, is now rapidly approaching completion. It is thoroughly fireproof, and gives space for arranging the books, records and specimens in a way which will add largely to their utility. A portion of the building has been turned over to this department, and the most important part of the pension records and of the library have been moved to it and thus made secure from fire.

In this connection I desire to express my appreciation of the care and labor bestowed in the supervision of the construction of this building by the officers who have had charge of it, viz., Colonel T. L.

Casey and Colonel J. M. Wilson, of the U. S. Engineer Corps. They have had many difficulties, but it is believed that the result is as satisfactory as the too limited appropriation at their disposal for this work would permit.

HOSPITAL CORPS.

"An act to organize the Hospital Corps of the Army of the United States" having been approved by the President, a board of competent and experienced officers was detailed to carry out its purpose and prepare the necessary plans for its working details; the report of the board having been approved by the Secretary of War and promulgated in orders to the army, the necessary transfers to the corps of enlisted men as acting hospital stewards and privates are being made as rapidly as possible.

The conditions of transfer are such that the corps will consist of a body of intelligent men, who, under instruction from the medical officers of the army in the important duties of caring for the sick and attendance upon the wounded, will furnish an organization under the control of the medical department, which will enable it to meet promptly all the accidents of peace and emergencies of war.

A system of lectures upon, and practical demonstration in, first aid to the wounded has already been successfully introduced, and drills for stretcher and ambulance service will soon be perfected.

The onerous and frequently dangerous service performed by the privates of the corps entitles them, in my opinion, to an extra pay. I accordingly recommend that an allowance of 20 cents per day be added to their present pay.

ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, ARK.

This hospital was opened for the reception of patients January 17, 1887, under charge of Major R. S. Vickery, surgeon U. S. Army.

Admitted as patients from January 17 to June 30, 1887.....	45
Returned to sick leave.....	4
Left hospital.....	2
Returned to company.....	8
Returned to duty—commissioned officers..	2
Returned to furlough	1
Died.....	1
	<hr/> 18
Remaining in hospital June 30, 1887....	27

The total number of applications from commissioned officers and enlisted men for admission is fifty-three, of which five were rejected.

The number of patients in the hospital July 1, 1887, was—

Officers of the army.....	5
Officers of the navy	1
Enlisted men of the army.....	21
Total	<hr/> 27

Total number of beds for patients, July 1, 1887 :

For officers.....	16
For enlisted men.....	64

It is believed that the benefits to the army and navy from the use of the waters of this justly celebrated place will be great, and liberality in the supply of funds for its maintenance and improvement is earnestly recommended.

MISCELLANEOUS.

The Army Medical Board convened in New York city on the 6th of April, 1885, was dissolved by order from the War Department dated April 9, 1887. The following is a recapitulation of the work performed by the board during its session :

Assistant surgeons examined for promotion....	8
Candidates for appointment in the medical corps invited to appear for examination...	93
Candidates found qualified.....	16
Candidates rejected.....	21
Candidates who withdrew after partial examination	32
Total examined	<hr/> 69

Candidates who failed to appear for examination 19
 Candidates who declined to appear for examination..... 5

Number invited but not examined 24

Lieutenant-Colonel John Moore, assistant medical purveyor, was appointed surgeon-general, with the rank of brigadier-general, November 18, 1886, *vice* Murray, retired from active service.

There are no vacancies in the medical corps of the army.

The number of medical officers perma-

nently disabled is becoming a matter of serious embarrassment to the efficiency of this department and renders necessary the employment, under contract, of private physicians; an expensive and unsatisfactory procedure, to remedy which it is hoped that Congress may be induced to take action by special or general legislation.

With this view I urgently recommend that an increase of twenty assistant surgeons be authorized; which addition, it is believed, will meet the necessities of the service.

EXTRACTS FROM THE FIFTEENTH ANNUAL REPORT OF THE SUPERVISING SURGEON-GENERAL OF THE UNITED STATES MARINE-HOSPITAL SERVICE, 1887.

RELIEF FURNISHED.

Patients relieved..... 45,314
 Treated in hospitals..... 13,084
 Treated in dispensaries..... 32,230
 Days' relief in hospital furnished..... 331,701

This is the largest number of patients furnished relief in any year since the organization of the service.

THE QUARANTINE SERVICE.

Vessels Boarded and Inspected at the Several United States Quarantine Stations.

	October, 1886, to April, 1887.	1887.					
		April.	May.	June.	July.	August.	Sept.
Delaware Breakwater.....				45	49	22	29
Cape Charles.....		7	17	7	11	17	70
South Atlantic (Sapelo Sound).....			1		1		
Ship Island (Gulf of Mexico).....	22	5	11	11	12	7	10

The station at Ship Island has been kept open the year round. The hospital at Delaware Breakwater is also kept open during the year, but the inspection of vessels is discontinued at the end of the quarantine season, usually October 31. The other stations are closed during the winter and placed in charge of keepers.

The stations at Delaware Breakwater and Cape Charles serve not only as protection to the several large cities and the States in the immediate vicinity, but through them to the country at large, and the recommendation made in previous

reports that these stations be thoroughly equipped with all the modern appliances of quarantine, is respectfully renewed. Special appropriations are required to provide additional buildings and wharf facilities. Extensive repairs are also needed at Ship Island, or, in lieu thereof, a new plant on one of the other islands in the Gulf. One of the Chandeleurs, or the Grand Gozier, was recommended in my report for 1883, or the Pass à l'Outre, which would doubtless be the best location for the national quarantines. A bill for this purpose passed the Senate February 2, 1887,

but, although reported back to the House favorably by the Committee on Commerce, it was not acted upon. The great importance of this measure leads me to hope that it will pass at the next session.

AID TO STATE AND LOCAL BOARDS OF HEALTH.

The several stations on the Atlantic and Gulf coasts should be properly equipped, and a station established on the Pacific coast, in San Francisco bay. Then the efficiency of the services contemplated by the act of April 29, 1878—aid to State and local boards—would be greatly increased.

The following letter has been received in regard to the Delaware Breakwater quarantine station :

STATE BOARD OF HEALTH,
EXECUTIVE OFFICE, 1532 PINE STREET,
PHILADELPHIA, August 3, 1887.

DEAR SIR: I am instructed by the State Board of Health of Pennsylvania to transmit to you the following resolution, passed at the stated meeting held July 13, 1887.

I have the honor to be,
Yours, very respectfully,
BENJ'N LEE, Secretary.

DR. JOHN B. HAMILTON,
Supervising Surg.-Gen., U. S. M. H. S.

Resolved, That, in the opinion of this board, the quarantine facilities now existing on the Delaware bay and river are insufficient in extent and antiquated in character, and this board, therefore, petitions the Government of the United States to complete the partial and inadequate arrangements which now exist at the mouth of Delaware bay, and to extend the term of quarantine against small-pox throughout the entire year.

WEEKLY ABSTRACT OF SANITARY REPORTS.

The publication of the weekly abstract of sanitary reports, as required by section 4 of the above-mentioned act, was resumed in January last and is being continued. Copies of each abstract are sent to the medical officers and acting assistant surgeons of the Marine-Hospital Service, customs officers, health officers of the various ports, State and local boards of health, and numerous sanitarians throughout the country.

In accordance with the provision contained in the sundry civil appropriation act, the method practiced in Mexico and Brazil for inoculation as a protection against yellow fever is now being investigated by Major George M. Sternberg, Surgeon U. S. Army, who has been detailed by the President of the United States for that investigation. He has been provided by this bureau with the necessary appliances, on his requisition, and it is believed that his report will be handed you in the course of the winter. Dr. Freire's own statement is now public as to the method claimed by him to have been successful in Brazil, and can be found in the Transactions of the International Medical Congress. The general opinion of sanitarians, however, has not yet crystallized in favor of inoculation as a preventive of yellow fever. The experiments made on the subject in Havana in 1855 were seemingly as conclusive as those of to-day, but they did not succeed in securing general adoption, and Dr. Sternberg's report will doubtless provide the necessary data for passing judgment on the efficacy of the methods.

CHOLERA IN EUROPE.

Cholera, although disappearing at one place only to reappear elsewhere, has lingered in Europe, principally in Italy, during the past year. The places from which the disease has been reported, in addition to those mentioned in the last annual report, are Cagliari, Rome, Castelmare, Genoa, St. Giovanni, Resina, Catania, Messina, Palermo, Valletta and Esseg, Austria-Hungary, and recent consular reports (August, 1887) show a rapid increase of the disease, especially in Rome, Tivoli, Valletta, Palermo, Messina, Resina, and Naples.

CHOLERA IN SOUTH AMERICA.

The disease made its appearance in Buenos Ayres in the month of November last, and was, as shown by the report of the United States minister, directly "imported from Genoa, Italy, by the Italian ship,

Perseo, plying between Genoa and Buenos Ayres. The envoy extraordinary and minister plenipotentiary of the Argentine Government in Italy was a passenger on the ship, and the anxiety to secure him an immediate landing on the part of the ship's commander, seems to have so far overcome his sense of duty that, by concealed or garbled reports, he managed to turn loose on Argentine soil, first here, then at Rosario, a great many persons from an infected ship. The testimony of passengers shows conclusively there was nearly a score of burials at sea of those who died of cholera on the voyage." During the month of November, notwithstanding the promptness in adopting sanitary measures, two hundred patients sick with cholera were admitted to the cholera hospital at Buenos Ayres, of which number ninety-three died and seventy-three were still under treatment at the end of the month.

In Rosario the disease was more fatal; in a population of 50,000 there were from thirty-five to fifty deaths per day. In the cholera hospital alone there were over two hundred patients in November, of which more than fifty per cent. proved fatal. A month later the reports from Buenos Ayres were more encouraging, but the disease had broken out in greater violence in the interior of the republic. In Mendoza, the development of the disease was most remarkable; the population of the city, 20,000, was almost decimated. At Tucuman, Cordova, Montevideo, Santiago, and Valparaiso, and especially along the valley of the Aconcagua following the course of the river towards the sea, the spread of the disease was exceptionally rapid. It was reported that cholera disappeared from Buenos Ayres in the month of March, 1887, but a number of cases was reported the succeeding month, and an official report dated as late as August 13, 1887, says that "cholera has never fully disappeared from the south of Chili, and that it is now increasing at Concepcion, and possibly at Talcahuano and Talca, and is causing much alarm on the coast."

CHOLERA IN THE UNITED STATES.

The steamship *Alesia*, from Naples, Italy, arrived at the New York quarantine on the night of September 22, 1887, with four cases of cholera on board. Eight deaths from the same disease occurred on the voyage. Three cases were also imported on the steamship *Britannia*.

NOTIFICATION FROM ABROAD.

The forthcoming regulations of the Department, I am informed, will contain full and complete instructions to United States consular officers in regard to prompt notification of the existence of epidemics in foreign countries, and of the departure of emigrants and vessels from infected ports. The aid in this matter, heretofore furnished by the Department of State, is very great, but it will be greater under the new regulations.

If Congress will only provide for the proper equipment and maintenance of the national quarantines the sanitary defenses against invasion of epidemic diseases will be greatly strengthened. The act of April 29, 1878, should be supplemented by new legislation providing a severe penalty for its violation. A vessel bringing cholera or yellow fever to our shores with the connivance of the officers, should not escape lightly.

APPOINTMENTS.

One examining board was convened during the year for the examination of applicants for admission into the service, and of the seven candidates who passed the examination successfully, one was appointed an assistant surgeon, taking rank in the order of merit. The service is open to all regular graduates in medicine, between the ages of twenty-one and thirty years, without regard to political recommendations.

Acting assistant surgeons have been re-appointed at Delaware Breakwater, Cape Charles and Gulf quarantines for duty during the quarantine season.

QUARANTINE HOSPITALS.

The hospitals at Ship Island, Sapelo Sound, and at Fisherman's Island are mere temporary structures, maintained from year to year from the contingent appropriation for the prevention of the spread of epidemic diseases. The hospital at the Delaware

Breakwater is in better condition than either of the others, but it is out of the question to have first-rate hospitals on such an uncertain basis as that of contingent appropriations. If they are to be maintained at all, they should be well built and in such a manner as to insure the highest state of efficiency.

REPORT OF SURGICAL OPERATIONS.

FISCAL YEAR 1887.

Operations.	No. of cases.	Remarks.
Total Number of Operations.....	613	
REMOVAL OF TUMORS.....	23	
For sebaceous cysts.....	3	Removed.
For cyst of neck.....	2	Aspiration and compression.
For keloid of jaw.....	1	Removed with knife.
For keloid of neck.....	1	Do.
For lipoma of back.....	2	Do.
For adenoma of neck.....	1	Do.
For epithelioma.....	6	Do.
For carcinoma, upper jaw.....	1	Removal of jaw; in hospital.
For sarcoma of orbit.....	1	Enucleation.
For lipoma of orbit.....	1	Removed with knife.
For melano-sarcoma of choroid.....	1	Enucleation.
For synovial cyst of wrist.....	1	Removed with knife.
For non-malignant growth of eyelid.....	1	Do.
For colloid carcinoma of breast.....	1	Do.
REMOVAL OF FOREIGN BODIES.....	6	
For gunshot wound of chest.....	1	Ball removed.
For gunshot wound of hand.....	2	Do.
For gunshot wound of thigh.....	1	Do.
For splinter in thigh.....	1	Splinter removed.
For needle in arm.....	1	Needle removed.
OPENING OF ABSCESES.....	10	
For abscess of liver.....	2	Incision, 1; aspiration, 1; died, 1.
For abscess, scrotum and perineum.....	1	Died; pyæmia.
For abscess, perityphlitic.....	1	Incision and drainage.
For abscess, perinephritic.....	1	Do.
For abscess, psoas.....	1	Aspiration; recovery.
For abscess, axilla.....	1	Incision and drainage.
For abscess, chest wall.....	1	Incision and curetting.
For abscess, forearm, dissecting.....	1	Incision.
For abscess, ischio-rectal.....	1	Incision and drainage.
OPERATIONS ON THE NERVES.....	3	
For neuralgia, fifth nerve.....	2	Section of inf. maxillary nerve, 2.5 cm. removed, 1; neurotomy left sup. max. div., 1.
For neuritis, popliteal branches.....	1	Stretching popliteal nerve; successful.
OPERATIONS ON THE EYE AND APPENDAGES.....	12	
For entropion.....	1	Excision.
For pterygium.....	5	Incision.
For lachrymal abscess.....	1	Iridectomy.
For prolapse of iris.....	1	Flap operation.
For cataract.....	1	Excision.
For chalazion.....	1	Iridectomy.
For ulcer of cornea.....	1	Do.
For leucoma.....	1	
OPERATIONS ON THE HEAD.....	2	
For fracture of the skull, punctured.....	1	Trephined; recovered.
For Dermoid cyst, frontal bone.....	1	Extripation.
OPERATIONS ON THE FACE AND MOUTH.....	10	
For removal of tonsils.....	1	Hypertrophy.
For elongation of uvula.....	2	Excision.
For necrosis, upper jaw.....	4	Dead bone removed.
For necrosis, lower jaw.....	1	Do.
For cleft palate.....	1	Unsuccessful.
For necrosis of turbinated bones.....	1	Crushed and removed.
OPERATIONS ON THE ARTERIES.....	3	
For aneurysm, popliteal artery.....	2	Compression, 1 failed; ligation, 1 successful.
For wound of temporal artery.....	1	Ligation.

SURGICAL OPERATIONS, FISCAL YEAR 1887—Continued.

Operations.	No. of cases.	Remarks.
OPERATIONS ON THE VEINS.....	2	
For varicose veins of leg.....	2	Successful, 1; unsuccessful, 1.
OPERATIONS ON THE RESPIRATORY ORGANS.....	23	
For hydrothorax.....	14	Aspiration; two died.
For empyema.....	7	Paracentesis and excision of rib; all recovered.
For abscess of lung.....	1	Aspiration; not successful.
For hæmatoma.....	1	Do.
For edema of glottis.....	1	Laryngotomy; recovery.
OPERATIONS ON THE DIGESTIVE ORGANS.....	66	
For hernia, inguinal, strangulated.....	3	Two died.
For hernia, radical cure.....	11	One died.
For fistula in ano.....	20	Incision, 19; ligature, 1.
For hæmorrhoids.....	25	Ligature, 14; injection carbolic acid, 7; clamp and cauterization, 3.
For ascites.....	6	Three died.
OPERATIONS ON THE LYMPHATIC ORGANS.....	16	
For removal of diseased lymph-glands.....	16	Dissected out.
OPERATIONS ON THE URINARY ORGANS.....	156	
For pyonephrosis.....	2	Nephrotomy; successful.
For retention of urine.....	1	Aspiration of bladder; died.
For vesical calculus.....	3	Lateral lithotomy, 1; median, 2; all recovered.
For stricture of the urethra.....	147	
a. Gradual dilatation.....	14	
b. Forcible dilatation.....	52	
c. Internal urethrotomy.....	69	3 died: 2, pyæmia; 1, shock.
d. External urethrotomy.....	5	1 died; pyæmia.
f. Perineal section.....	1	Recovered.
g. Slitting meatus.....	3	
For urinary fistula.....	2	Plastic, 1; not successful, ext. urethrotomy, 1.
For cystocele.....	1	Emmet's operation.
OPERATIONS ON THE GENERATIVE ORGANS.....	113	
For phimosis.....	70	11 slitting; 59 circumcision.
For hydrocele.....	28	20 radical cure.
For hydrocele of cord.....	4	Radical cure.
For sarcoma, testicle.....	1	Castration.
For orchitis, chronic.....	1	Do.
For syphilitic disease of testicle.....	1	Do.
For tubercular disease of testicle.....	3	Do.
For cystic disease of testicle.....	2	Do.
For hæmatocele.....	1	Incision.
For epithelioma of penis.....	1	Amputation.
For primary syphilitic disease of penis.....	1	Do.
OPERATIONS ON THE ORGANS OF LOCOMOTION.....	63	
ON BONES.....	22	
For caries of sternum.....	3	Dead bone removed.
For fracture, elbow joint.....	1	Excision olecranon.
For necrosis of ulna.....	3	Dead bone excised.
For caries of radius and ulna.....	1	Bones scraped.
For caries of pelvis.....	2	Scraping.
For necrosis of humerus.....	1	Removal necrosed bone.
For necrosis of patella.....	1	Do.
For necrosis of tibia.....	4	Do.
For necrosis of femur.....	1	Trephine and gouge.
For vicious union, bones of forearm.....	1	Refracture.
For ununited fracture of tibia.....	3	2 unsuccessful.
For faulty union, fractured femur.....	1	Refracture.
ON JOINTS.....	41	
Inflammation of hip.....	1	Resection.
Reduction of dislocations:		
Jaw.....	2	Manipulation.
Shoulder.....	2	Do.
Clavicle, sternal.....	1	Do.
Elbow.....	2	Do.
Hip.....	1	Do.
Ankylosis, elbow.....	1	Rupture.
Loose cartilages, knee-joint.....	2	Incision and removal.
Chronic synovitis, knee-joint.....	24	Aspiration.
Bursal inflammation.....	3	Do.
Bursal tumor.....	1	Removed.
Contraction extensor tendons of toes.....	1	Tenotomy.
AMPUTATIONS.....	96	
Fingers for contracted tendon.....	1	
Fingers for whitlow.....	6	
Fingers for frostbite.....	3	
Fingers for necrosis.....	10	
Fingers for abscess.....	2	
Fingers for caries.....	4	
Fingers for compound fracture.....	7	
Fingers for lacerated wound.....	10	
Fingers for burns.....	1	
Hand for compound com. fracture.....	1	

SURGICAL OPERATIONS, FISCAL YEAR 1887—*Continued.*

Operations.	No. of cases.	Remarks.
AMPUTATIONS—Continued.		
Hand for osteitis.....	1	
Forearm for compound com. fracture.....	1	
Forearm for necrosis.....	1	
Forearm for caries, radius, and ulna.....	1	
Arm for compound fracture.....	3	2 recovered; 1 died.
Toes for frostbite.....	2	
Toes for gangrene.....	21	
Toes for necrosis.....	1	
Toes for periostitis.....	4	
Toes for wound.....	1	
Toes for ankylosis.....	1	
Foot for compound fracture.....	1	
Foot for frostbite.....	4	
Foot for lacerated wound.....	1	
Foot for necrosis.....	1	
Leg for compound com. fracture.....	1	Died; septicæmia.
Leg for necrosis.....	2	Both recovered.
Thigh for necrosis.....	2	Do.
OPERATIONS ON THE SKIN.....		
Chronic ulcer.....	9	
Ingrown nail.....	4	Skin grafting.
Onychia.....	1	Avulsion.
Contracted palmar fascia.....	2	Nail removed.
Lac. wound of hand.....	1	Subcutaneous section.
	1	Skin grafting.

PTOMAINES.

BY CHARLES O. CURTMAN, M. D., ST. LOUIS, MISSOURI.

A report on the present state of our knowledge of ptomaines and their relations to bacteria.

The detection of the poisonous vegetable alkaloids in the dead body has always been considered to be one of the more difficult problems of analytical chemistry. Yet by means of the methods devised by Stas, Otto, Erdmann, Uslar, and Dragendorff, and their various modifications, sufficient of system and accuracy was introduced to regard the results with a general feeling of confidence. If errors and deficiencies occurred now and then, they were placed to the account of individual inaccuracy and want of dexterity rather than that of imperfection in the methods. Some chemical authorities cautioned against wrong conclusions, as, *e. g.*, Sonnenschein against mistakes occasioned by the "well-known substance derived from the liver," but altogether the established methods were relied upon as trustworthy, and expert testimony in criminal cases was fully based upon them. Hence the publication by Selmi, in 1873, of his investigations of cadaveric alkaloids or ptomaines pro-

duced amazement and consternation, by destroying at a sudden stroke all confidence in the results of past research in this field. The position of forensic experts became especially painful by creating doubts of the justice of certain decisions in criminal cases.

The discoveries of Selmi were in a short time confirmed by other scientists, and each year increased the number of substances found in dead bodies, which gave with the customary reagents, color changes and precipitates similar to those produced by the well-known alkaloids. There were reactions found closely resembling those of delphinine, curarine, strychnine, etc., and the efforts of analysts were henceforth directed to the discovery of means to distinguish the two classes of substances.

Among the first of them Brouardel and Boutmy proposed the reduction of a solution of ferric chloride and ferricyanide of potassium to the insoluble Prussian blue. They asserted that such reduction was the

peculiar property of all ptomaines, while none of the true alkaloids produced it, with the sole exception of morphine. Armand Gautier showed, however, that hyoscyamine, colchicine, nicotine and apomorphine also reduced the ferric ferricyanide solution, though somewhat more slowly than morphine. To this list of reducing vegetable alkaloids C. Tanret added ergotinine, aconitine, digitaline and eserine. In an investigation published several years ago I succeeded in showing that besides morphine and the above mentioned, a number of other alkaloids of opium, as well as brucine, strychnine, cocaine, atropine, cinchonidine and several others reduce the ferric ferricyanide solution with great rapidity. It has since been found that many ptomaines are entirely devoid of such power of reduction, while in many cases this action was due to admixtures of peptone, collidine, etc., to the impure ptomaines as they were generally obtained in sirupy extracts.

In hunting for other means of differentiation, it was found that while most alkaloids are optically active in turning the plane of polarization, ptomaines are altogether inactive. But even this distinction, should it prove to be applicable in every case, avails but little, on account of the minute quantities to which the analyst is so frequently limited.

Still the number of ptomaines kept on increasing, and, based upon coincidences of the reactions with those usually relied upon for alkaloids, many individuals, some poisonous, some innocuous, were described and paraded in the journals. The difficulties of distinguishing them from vegetable alkaloids appeared to multiply to such an extent that forensic chemists began to think they would be driven off of this field of investigation entirely.

Meanwhile an extensive literature on this subject was forming, and the names of T. and H. Husemann, Panum, Selmi, Ciotto, Graebner, Otto, Dragendorff and others appeared frequently in our professional journals in connection with interesting re-

ports on ptomaines. As a reminder I mention a few items.

In the criminal process against the servant of the Italian general, Gibbone, accused of having poisoned his master, the experts reported that delphinine had been the cause of the general's death. Francesco Selmi saved the defendant from unjust conviction by proving that the reactions erroneously relied upon to prove the presence of delphinine were due to a ptomaine formed by the putrefaction of the dead body.

In the case of the widow Sonzogno, who was believed to have perished by morphine poisoning, Selmi also proved the experts in error, and showed conclusively that a cadaveric base had furnished the reactions which had been mistaken for those of morphine.

In a third case in Verona, strychnine, so easily recognizable by characteristic reactions, was reported as the cause of death, while Selmi proved clearly that strychnine was absent and that some reactions similar to it had been due to a ptomaine.

Shortly before his early death the same distinguished investigator prepared a crystalline substance, resembling curarine from putrefying albumen. The ptomaine which showed such great resemblance to strychnine was also found by Ciotto.

Panum isolated from septicemic material, almost in a pure state, a ptomaine resembling curarine, and ascribed it to the action of bacteria. In animals subjected to its action it produced violent inflammation of the mucous membrane of the small bowel. Bence Jones and Dupré obtained from human and animal livers in an advanced state of decomposition a substance showing blue fluorescence like that of quinine, to which they gave the name of animal chinoidine.

Zuesler and Sonnenschein prepared from putrescent cadavers a substance resembling atropine, which, in experiments on animals, increased the activity of the heart, enlarged the pupil and paralyzed the non-striated muscles of the intestine.

Roersch and Fassbender obtained a pto-

maine similar to digitaline; Schwanert, one resembling propylamine. One, approaching in qualities to coniine, was found by Armand Gautier and also by Marquardt and Hager, and was named septicine by the latter. In the criminal case Krebs-Brandes a similar substance was found by Otto accompanying the arsenic that had been administered. In a goose, Brouardel and Boutmy found a ptomaine resembling coniine.

Besides these, many other ptomaines were discovered by various investigators. Not only decomposing animal tissues, but also various parts of plants, furnished ptomaines. Thus Bergmann and Schmiedeberg obtained from putrid yeast a poisonous crystalline substance, which they named sepsine.

A. Poehl, a member of the commission charged by the Russian government with the investigation of the epidemic of ergotism which prevailed so extensively in 1881, found a large amount of ptomaines in flour made from rye infested by the *claviceps purpureus*.

Many efforts were made to improve the prevailing methods of Otto-Stas and of Dragendorff, so as to insure a more accurate differentiation between alkaloids and ptomaines, but to some extent all failed, and no method yielded the ptomaines in a sufficiently pure, crystallized condition for accurate analysis.

Nencki, of Berne, was the first who obtained from putrid gelatine a chemically pure platinum double salt of a ptomaine. This, on analysis, proved to be collidine, $C_8H_{11}N$, a member of the pyridine series.

Shortly after this, Gautier and Etard prepared parvoline, $C_9H_{13}N$, from putrefying mackerel.

Since 1883, Professor Brieger, of Berlin, has occupied himself considerably with the investigation of the ptomaines, and succeeded in elaborating methods for the isolation of a great number of these interesting substances in a state of absolute purity. He reached his object principally by means of the preparation of the gold

and platinum double salts and the picrates of the ptomaines, which crystallize in well-defined forms, and permit absolute purification.

The pure ptomaine salts thus obtained differ materially from the sirupy extracts hitherto supposed to be the pure salts. Many of the alkaloid reactions observed with the impure articles do not occur at all with the pure substances, and were due to admixtures of peptones and other bodies. A number of the compounds, as now studied in their pure state, do not come under the classification of true alkaloids in the present sense, which restricts the name alkaloids to the pyridine derivatives, but prove to be amines, ammonium bases and amido compounds of various composition. Some, in chemical constitution as well as in their toxic effects, resemble *muscarine*, $CHO-CH_2-N(CH_3)_3-OH+H_2O$. This poisonous base occurs together with amanitine (identical with choline from bile) in the fly-agaric, *amanita muscaria*. It has been artificially prepared by oxidation of the choline, or bilineurine, of hog's bile. These bodies are in close relation with *glycine* (called also glycocoll or amido-acetic acid), among whose derivatives we number *betaine* (called also oxyneurine or lycine), found in beets, the highly poisonous *neurine*, the non-poisonous *neuridine* and many others.

Others of the pure bases discovered by Brieger are di-amines, as, for instance, the *cadaverine*, identical with pentamethylenediamine, $NH_2-CH_2-CH_2-CH_2-CH_2-CH_2-NH_2$, and *putrescine*, a di-methylethylene-diamine.

In his second report on investigations of the ptomaines, published in 1885, Brieger enumerates the following ptomaines discovered by him in human cadavers:

Choline, $C_5H_{15}NO_3$, a non-poisonous ethylium base.

Neuridine, $C_6H_{14}N_2$, non-poisonous.

Cadaverine, $C_5H_{16}N_2$, a strong reductent.

Putrescine, $C_4H_{12}N_2$.

Saprine, $C_6H_{16}N_2$, strong reductent.

Trimethylamine, $(CH_3)_3N$.

Mydaleine, ———, a strong reductent.

Most of these are diamines of the fatty series.

Besides these bases, other well-known products of putrefaction were found, such as phenol, mostly paired with sulphuric acid, ortho- and para-cressol, indol and scatol, as well as other bodies of the aromatic series.

All of these occur as products of putrefaction, and it appears that within the first few days after death no poisonous base is formed. After the disappearance of the non-poisonous choline, however, compounds are formed of strongly toxic properties, among them especially *neurine*. When a solution of a few milligrammes of this is injected into cats, guinea pigs or rabbits, it rapidly induces fatal poisoning, most especially in the cat. At first copious moisture appears in the nares, then tough mucus in the corners of the mouth, followed by copious salivation, lachrymation, accelerated respiration and dyspnoea. The pulse at first is more frequent, then gradually sinks, and death occurs in diastole, with the heart filled to its utmost capacity. The symptoms are accompanied by increased peristaltic action of the bowels, and contraction of the pupils. Atropine is an effective antidote.

As there was a strong probability that these ptomaines were products of the metamorphosis of protein bodies by the bacteria of putrefaction, several series of experiments were instituted to cultivate them in sterilized protein derivatives, so as to be able to test purified products of various kinds of bacteria. In addition to the basic substances already named, there were found in putrefying fish and horse-flesh, *gadinine*, *ethylene-diamine*, *tri-methyl-amine* and other bases. Recently, Vaughan prepared from milk and cheese the *tyrotoxine*, which, however, thus far has not been obtained of sufficient purity for analysis.

The action of *pathogenic bacteria* was also studied, and ptomaines were obtained, which promised interesting explanation of the symptoms of infectious diseases. After the discovery of pathogenic bacteria and

their noxious influence on the living organism of plants and animals, the modus operandi of their deleterious action still remained obscure. It was accounted for by the mechanical irritation and pressure upon the tissues produced by their rapid multiplication, and by actual trauma of the cell walls perforated by sharp projections of the bacterium. This compression produced disturbance of nutrition, obstruction of circulation, interference with the regular excretion of the effete residues of tissue metamorphosis. Added to this was the using up of the nutrient elements required for the building up and repair of the body. All such consequences of bacterial invasion appear too natural and self-evident not to be assented to without much contradiction. But how does this explain the manifold symptoms observed at the bedside of persons affected with infectious disease? If the causes admitted to exist were the only or even the most important ones, whence the great multiplicity of phenomena? Why not identical, or at least very similar, disturbances when the same organ is infected by the most different parasites? We might thus account for a difference in the intensity of the symptoms, but never for the great variety actually observed.

Let us consider the action of bacteria and living ferments on dead material. In a solution of glucose quite a number of various *saccharomyces* grow and multiply at the expense of the sugar, leaving behind carbonic acid and alcohol as the final products of their vital process. In the same sugar solution *bacillus subtilis* effects quite a different metamorphosis, and lactic and butyric acids are here the result of the fermentation. Glycerine by the same *bacillus* is changed to propylic alcohol. If the brewer permits the true beer yeast, *saccharomyces cerevisiæ*, in his malt infusion to be substituted by other closely related cryptococci (known as spurious yeast) then alcohol is still formed, but is accompanied by nauseous division products of the sugar, and the beer is spoilt. Wine, fermented

with spurious yeast becomes stringy or acrid or otherwise deteriorated, as is ably shown in Pasteur's investigations. It would be easy to cite other well-known examples of similar character. We find here evidently that, when studying bacterial action, we must regard not only the material used up for their nutrition, but also the excrementitious residues they leave behind them.

The bacteria which excite malodorous putrefaction produce besides carbonic acid gas, sulphuretted hydrogen and gaseous hydrocarbons, also phenol, ortho- and para-cressol, indol, scatol, and, according to the different composition of the tissues invaded, a variety of ptomaines, muscarine, putrescine, cadaverine, gadinine, etc., as already stated.

Very similar to this is the action of pathogenic bacteria so far as at present investigated.

In 1885, Villiers isolated, according to Brieger's method, from bodies dead with *cholera*, a liquid ptomaine possessing the odor of hawthorne flowers, which in experimental animals produced violent tremors and strong disturbances of the heart's action, together with increased peristaltic action of the intestines.

He afterwards found a peculiar ptomaine in the victims of *pneumonia*, which bore close resemblance to that found in cases of *diphtheria*, but neither of those preparations was obtained in sufficient quantity to obtain its pure and crystallized salts for analysis.

Hoffa and others studied a ptomaine produced by the *bacillus anthracis*, but did not succeed in arriving at an unquestionable result.

The interesting researches of A. Poehl show that various bacteria, inoculated into sterilized gelatine, so changed this material that it gave undoubted evidence of the production of reducing ptomaines, whose formation could be observed while the life-process of the bacteria was going on. Among these were the bacillus of typhus, the streptococcus pyogenes aureus, Koch's comma bacillus (brought by Dr. Rapt-

chewsky from Spain). All these strongly reduced the ferric ferricyanide added to the gelatine, while the Prior-Finkler bacillus of cholera nostras, in spite of repeated trials, yielded no such reducing product, and throughout showed itself much less greedy of oxygen than the bacillus of cholera Asiatica. The experiments, however, do not exclude the formation of a non-reducing ptomaine by the Prior-Finkler bacillus of cholera nostras (the vibro proteus). The comma bacillus also produced in these experiments a peculiar red pigment, soluble in amylic alcohol, whose composition is most probably that of a derivative of scatol (methyl-indol).

Professor Brieger, a very zealous worker in this field, speaks of this relation of the bacteria in the third volume of his *Untersuchungen ueber die Ptomaine*. The changeable picture presented by infectious diseases points out that this group of maladies, comprising the far preponderating majority of all cases of sickness, must seek its origin in very different causes. Quite a number of different pathogenic bacteria are already known, whose agency in the causation of a series of diseases is beyond all controversy.

He dwells on the necessity of discarding ambiguous terms, to which, by various succeeding writers, different shades of meaning have been affixed, and advocates the adoption of a clear, well-defined nomenclature so as to avoid future misunderstandings. He proposes the retention of the generic name of ptomaine for any basic product of bacterial action, while he gives the names of toxines to the poisonous ptomaines. The name leucomaines is reserved for the bases examined by Gautier and by Kossel and Salomon, which are formed from the albumens during the normal process of life.

To avoid confusion, Brieger first re-examined all the ptomaines produced by the action of the bacteria of putrefaction (*B. termo* and *B. lineola*), among which

there are found several highly poisonous toxins. In addition to those already mentioned, he found in putrid horse-flesh (of which sometimes several hundred pounds were used at once), besides cadaverine and putrescine, a very poisonous amido-acid, $C_7H_{17}NO_{21}$, which produced in experimental animals symptoms resembling those by curare. This was accompanied by a still more poisonous, but more slowly acting base, the mydatoxine, $C_6H_{13}NO_2$; also the poisonous methyl-guanidine, $C_2H_7N_3$, evidently a derivative of kreatine.

Oscar Bocklisch, together with Brieger, examined putrefying fish and found the non-poisonous bases, cadaverine and neuridine; besides these, di- and tri-methylamine, putrescine and other putrefaction bases.

In the *mytilus edulis*, an oyster-like mollusk, whose use as food has several times occasioned extensive poisoning, Brieger found the highly poisonous mytilotoxine, $C_6H_{16}NO_2$, betaine and other bases, as the products of incipient putrefaction.

After a very thorough-going study of the products of the putrefactive process, Brieger investigated the ptomaines produced by the culture on sterilized substrata of pathogenic bacteria.

Staphylococcus pyogenes aureus yielded no toxin, but only ammonium salts. Pure cultures of *streptococcus* yielded considerable quantities of tri-methylamine, which is not entirely free from poisonous properties.

The Koch-Eberth typhus bacillus produced a small quantity of an exceedingly poisonous ptomaine, having the formula

$C_7H_{17}NO_2$ (isomeric, but not identical with the above mentioned putrefaction ptomaine). To this the name typhotoxine was given. It produced in experimental animals a lethargic condition and other symptoms resembling those of typhus in man.

From cultures of the tetanus virus Brieger obtained the base tetanine $C_{19}H_{30}N_2O_4$, besides much ammonia. The hydrochlorate and still more the free base, when injected into the lower animals, produced clonic and tonic spasms of great violence, and led rapidly to a fatal termination.

Of others who have investigated this interesting subject, I mention Doleris and Butte, who in the blood of eclamptic patients found a crystalline toxine.

Bouchardat studied the phenomena of poisoning produced by injected urine. Bocklisch confirms the absence of ptomaines in the pure cultures of the *vibrio proteus*, the Prior-Finkler bacillus of cholera nostras. Besides these, many others are giving their time and talents to this problem.

Brieger announces that he will continue his researches, and probably ere long we may hear of further important discoveries.

In the light of such revelations the endeavor of the physician will henceforth not be confined merely to the prevention of infectious diseases, or the destruction of the parasitic organisms, but also to the discovery of suitable antidotes to the poisonous compounds introduced into the system by their agency.—*Weekly Medical Review*.

THE PUPIL IN HEALTH AND DISEASE.

BY DR. JOHN CHASE, DENVER, COLORADO.

[Read before the Arapahoe County Medical Society.]

Correct diagnosis depends on a thorough study of symptoms, and the physician who would prescribe intelligently must be able to correctly interpret the varied functions of the body in health and disease. I wish to-night to call your attention for a few moments to an organ which often serves as a guide-post to the intelligent observer, pointing him to disease of distant organs.

Too little attention has been given by the general practitioner to diseases of the eye, and too many of them are deprived of valuable aid in diagnosis by neglecting to observe the action of the eye in disease of remote organs. And now, to offset that remark, I wish to assert that most of the phenomena of the pupil which are made use of in diagnosis have been recorded and classified by the general practitioner, and to him, and not to the specialists, as yet, belongs the credit of reducing to anything like available form the clinical features of the action of the pupil. Not that the specialist has been idle, for the patient toil of the histologist and physiologist had already borne fruit, and a little light has commenced to shine on one of the dark corners of medicine. Leaving out of the present discussion the examination of the deeper structures of the eye, I wish to direct your thoughts to the action of the pupil in health and disease. Allow me to remind you that normally the pupil is a perfectly round aperture in a fibro-muscular tissue, the iris. The muscular tissue is divided into circular and radiating fibers. The former comprises the sphincter of the pupil and receives its nervous impulse from a branch of the "motor oculi." Many histologists deny the existence of the radiating fibers, but the weight of evidence is for their presence, and it is quite well estab-

lished that they receive their nerve supply from the sympathetic. From this it can readily be seen that *contraction* of the pupil may follow direct stimulation of the motor oculi or paralysis of the sympathetic, and that *dilatation* of the pupil may result from stimulation of the sympathetic or paralysis of the third nerve. Contraction of the pupil also occurs, 1, when the retina or optic is stimulated; 2, when the eyes are accommodated for near vision; 3, in the early stages of poisoning by chloroform and alcohol, and in nearly all stages of poisoning by opium, arsenic and some other drugs; 4, in deep sleep; 5, after local application of myotics. *Dilatation* of pupil occurs, 1, when stimulus of light is withdrawn from the eye; 2, when the eye is adjusted for distant vision; 3, in dyspnoea, during powerful irritation of the sensory nerves, during violent exercise, during poisoning by atropine and allied drugs; 4, after local application of *mydrolin*.

Two antagonistic forces work upon the pupil: One, through the motor oculi as an efferent and the optic as afferent tracts, is reflex in nature; the other, "tonic" in nature, with the cervical sympathetic as the afferent channel. These two forces are readily acted upon and interfered with by diseases at a distance from the eye, and the pupil acts as an index of the condition, but great care is necessary to correctly translate the indication. The pupils should be examined as to (1) equality in size, (2) size in ordinary light, (3) mobility, (4) shape.

To successfully apply to systemic diseases the actions of the pupil we must first exclude all pathological changes due to disease of the eye itself, remembering as well that myosis, or extreme contraction of the pupil, may be caused by various drugs,

such as eserine or pilocarpine, and that mydriasis is often the result of a local application of cocaine or atropine. In iritis the pupil will often react but sluggishly, and may be tied by adhesion to the lens, either partially or completely. In another large class of cases the pupil is dilated, owing to amaurosis, and it must not be forgotten that an increase of intra-ocular tension from any cause produces dilatation of the pupil. Outside of these local causes, the pupil is influenced by the condition of the general system, and it is among these cases that is found the clinical advantage of a study of the pupil. I confess to considerable disappointment in looking over the literature of the subject to find, not only a diversity of opinion, but a direct antagonism among those who have investigated closely. At present, however, nearly all agree upon one or two propositions, which will serve as a basis for further work. Whatever depresses the cerebro-spinal system, or *excites* the ganglionic system causes mydriasis; and we find *myosis* whenever the ganglionic system is depressed or the cerebro-spinal irritated. Clinical theories, then, are quite well supported.

To mention the action of the pupil in all the general diseases of the body, where it is subject to change, and to give the reason of its action, would be but to give a pathological account of them all, and so we will content ourselves with a mere enumeration of a few of the more prominent ones. Dilatation of course occurs in paralysis of the third nerve, and this in turn may be the result of meningitis, morbid growths near

the nerve, periostitis at base of the skull, or involving the sphenoidal fissure, or syphilis. *Myosis* often follows obstinate constipation or irritation of digestive tract, and mydriasis occasionally occurs in disturbance of the cerebral circulation.

Apoplexy at the base of the brain causes at first dilatation, followed in the reaction by contraction of the pupil. Basilar meningitis, on the contrary, causes, first, contraction and then dilatation. In hysteria the pupil usually contracts at the commencement of the attack, and later, dilates.

Locomotor ataxia may often be ushered in by a partial paralysis of the muscles of the eye, often only the internal muscles being affected. The most frequent variety is loss of the reflex action of the pupils, while the associated action remains. By this is meant that the pupils remain stationary when shaded and exposed to light, but contract and dilate when the accommodation is called in play. This phenomenon is known as the "Argyll Robertson pupil." This is one of the most valuable of the early symptoms of locomotor ataxia. Its weakness lies in the fact that as yet we do not know how frequently it may occur in healthy persons, or those without subsequent spinal disease. But enough, perhaps, has been said to indicate the line our study should pursue. If the action of the pupil can give us any definite intelligence of pathological changes in remote organs it is unfortunate that we can not fully read its meaning in all cases, and bring to our aid in diagnosis an ally so readily seen and interrogated.—*Denver Medical Times.*

THE PUPIL AS A GUIDE IN THE ADMINISTRATION OF CHLOROFORM.

It is always difficult to determine the exact moment in which a patient is sufficiently under the influence of chloroform for an operation to be proceeded with. The sign of conjunctival reflex action, which is usually relied upon, is very variable and often misleading. Mr. Henry J. Nelson formulates the following conclusions as a guide in this respect (*British Medical Journal*):

1. The effect produced by chloroform on the pupil is at first dilatation, varying in degree and duration, then contraction as the narcosis becomes profound, and dilatation again when the sensibility is returning. If the administration be still continued, with the pupil strongly contracted and motionless, the pupil will also dilate, but in this case more suddenly and completely, and will be coincident with a state from which it will be difficult or impossible to resuscitate the patient. This latter is the dilatation of asphyxia.

2. So long as the pupil dilates in response to excitation by pinching, etc., the patient is not sufficiently narcotized for the operation to be proceeded with, unless the latter is slight and does not require complete anaesthesia.

3. When the pupil becomes strongly contracted and immobile, no more chloroform should be given until it begins to dilate again. If, then, further anaesthesia be required, a little more chloroform should be given till the pupil again contracts.

4. The occurrence of sickness causes dilatation similar to, but more sudden than, that which happens when sensibility is returning, and the efforts of vomiting have the effect of arousing the patient.

The watching of the respiration and the pulse, which are doubtless the best indications of the effect produced on the indi-

vidual by chloroform, and, therefore, of vital importance for safe administration, does not in many cases furnish evidence of the state of sensibility, in regard to which he holds the observation of the pupil to be of greatest assistance. The sign usually relied on, namely, the insensibility of the conjunctiva, is by no means a satisfactory test, for in many cases conjunctival anaesthesia is established long before the patient can be said to be under the influence of the drug. By observing the pupil, the administrator of chloroform can tell at once when the effect of the drug is on the wane, because the pupil then begins to dilate slowly. Noticing this, he can, by the administration of a few drops more chloroform till the pupil contracts again, prevent the occurrence of struggling and interruption of the operation. In this way he can keep the patient in the state most suitable for the satisfactory performance of the operation without narcotizing him more than is necessary. The amount of chloroform required to maintain a state of anaesthesia is much less than that required to put a patient under its influence several times, and as it is admittedly a dangerous drug, the less administered the better, especially in operations of long duration. And by allowing the patient partially to recover, one runs the risk of the occurrence of sickness and vomiting, which is always an awkward, and often a dangerous accident. In the absence of such a guide as the observation of the pupil, the chloroform is likely to be given in a rather haphazard way, dosing the patient till narcosis is profound, perhaps too much so, then interrupting the operation till the danger is averted by arousing him, or waiting until signs of feeling, such as struggles or a cry of pain, give indication for more chloroform.

The observation of the pupil also furnishes a fair indication of the effect produced by chloroform, its size bearing a constant relation to the state of the blood pressure. In the experiments on dogs the blood pressure in the carotid artery was recorded on charts, and it was found that contraction only occurred when the pressure had fallen considerably, and, on removal of the chloroform, dilatation only took place when the

pressure had risen to a certain height. As reduction of the blood pressure was pronounced by the committee of the British Medical Association to be one of the chief dangers in chloroform administration, the presence of a sign by which the occurrence of that important condition can be recognized must be of practical value.—*The American Medical Digest.*

WORD-BLINDNESS.

In his "Treatise on Practical Medicine," published in 1838, Gendrin speaks of patients "who find it impossible to read, but who can write by a sort of memory of the movements of the fingers necessary to trace the words; when once the letter is written, the patient is no longer able to recognize it." An almost identical description is given by Trousseau, in a clinical lecture, of a form of aphasia first described and named as a distinct species by Kussmaul in 1877, and called by him *word-blindness* (Wortblindheit).

Charcot, in his last volume on "Diseases of the Nervous System," sums up the details of sixteen observations, of which one had been carefully studied by himself; these cases have all appeared in the medical journals the past few years. The following, in substance, are Charcot's conclusions: In general, the onset of this form of aphasia has been sudden, and attended, at first, with a certain degree of right hemiplegia, which soon disappeared. During the first few days there is almost always a little motor aphasia, which vanishes later, the word-blindness alone remaining. There are, however, exceptions to this, and, in a remarkable case, originally reported by Gueneau de Mussy, in Galezowski's *Journal Ophthalmologique*, the word-blindness made its appearance isolated from all other complications of a paralytic kind. It is

true, however, that a right-sided hemiplegia soon followed.

Visual troubles have been somewhat vaguely mentioned in connection with a certain number of cases. The patient whose case was reported by Westphal (*Zeitschrift für Ethnologie*, 1874), and the patient who was the subject of Charcot's description, had well-marked hemianopsia. So, also, with Gueneau de Mussy's patient.

A peculiarity of typical cases is that when the subjects of word-blindness make efforts to read a book or manuscript, they are obliged to trace out the letters and words with their fingers before they can obtain any understanding of what they are endeavoring to read. The ideas imparted by these movements of the fingers appear to be indispensable to give value and precision to the vague motions furnished by the visual images; in other words, the patient can only read by writing. In Charcot's patient, these digital movements, which were so necessary to supplement the sight in obtaining the recognition of words, were instinctive; in no other way, in fact, could the visual memories be recovered.

Charcot gives the result of three autopsies—one pertaining to a patient of M. Déjerine, another to a patient of M. Chauffard, the third to a patient of MM. Heilly and Chantémesse. These three observations perfectly agree in one point—

the predominant lesion was found to be in the inferior parietal lobule, with or without participation of the angular gyrus and the first temporal convolution. In cases in which there was lesion of the latter convolution, the verbal blindness was found complicated with word-deafness. Charcot finds reason to conclude that the lesion on which verbal blindness depends has for its seat the inferior parietal lobule, with or without participation of the angular gyrus. The existence of the lesion in those parts of the cortex which cerebral physiologists have, with very general unanimity, fixed upon as the visual perceptive center, easily explains the hemianopsia which characterized several of the cases. As for the precise alteration by which verbal blindness is determined, we are still dependent on conjecture, although there is reason to believe that the primary vascular lesion is generally a plugging (thrombosis or embolism) of the Sylvian artery, which furnishes branches to Broca's convolution, the seat of motor aphasia, and to the regions where verbal blindness and hemianopsia seem to have their location. The lesion of these arterial branches is the primary fact, and the atrophy or softening of the cerebral tissue the consequence.

Gueneau de Mussy, who had an opportunity of studying a remarkable case, which is treated in his usual thorough and philosophical manner in the last volume which

he published, proposed to substitute for the name *word-blindness* (*cécité verbale*), and the appellation *aphasic amblyopia*, which Galezowski had bestowed on this affection, the term *asémiognosie optique* (optical asémiognosia); that is, absence of the knowledge of signs. This term seemed to De Mussy more exact than that of *word-blindness*, for there is really no *blindness* present in the ordinary acceptation of the word, and the patient has lost the *comprehension* not only of words, but of letters. "In adding to the word *asémiognosia* the adjectives of visual or optic, acoustic or tactile, we may," says this writer, "express the different varieties of this intellectual trouble, or their combination." The term is a good one, though too cumbersome, and is not likely to supplant that originally proposed by Kussmaul.

To conclude, all studies thus far made in this department of cerebral physiology testify in favor of the division of the memory into several forms, which correspond to the impressions furnished by the different senses; "and it seems very probable that each of these forms, is in relation with a distinct department of the cerebral substance which is the material condition of the formation of these sensorial memories, of their conservation, and of their transmission without."—*Boston Medical and Surgical Journal*.

EXTIRPATION OF THE LARYNX.

DR. F. DONALDSON, JR., in a letter from Berlin, in *Medical News*, says:

The surgical wards of the Friedrichshain Hospital are under Hahn, who is considered by many to be a greater surgeon than Bergmann. And, indeed, the purpose of this letter is to describe his (Hahn's) last successful operation for extirpation of the larynx. This operation is at present much discussed here in connection with the case of the Crown Prince, about which one hears

so much gossip and so little that is reliable. And the German physicians and surgeons, though differing, are at heart one in their sweeping condemnation of Morell Mackenzie. It is currently reported here that from the time he was called to the case, up to a few weeks ago, no German was allowed to examine the Prince's throat; and that is was not even permitted to Langraf, who accompanied his highness to England, and remained with him until September 15th.

Much comment has also arisen from Mackenzie calling Krause in consultation, as it is claimed that he does not represent Berlin medicine.

Again, Virchow now declares that he never said that the growth was *not* malignant; only that the *piece* sent him was not. However this may be, the growth is now said to be cancer, and medical Germany rejoices in the triumph of German diagnosis, and declares that the radical operation should have been performed at first, as was advised by Bergmann, Gerhardt, Tobold, etc. But then comes the question, "How far is this operation justifiable? Does it tend to prolong life?" I have before me Hahn's last two papers on the subject:

"Extirpation of the Larynx," and "The Results of Extirpation of the Larynx for Carcinoma," also the record of his 18 operations. The detailed record of those of Bergmann I could not get.

These figures are valuable, for they enable me to give a complete history of this operation till to-day. They are, moreover, entirely reliable, having been kindly given me by the distinguished professor himself.

There have been 103 partial and total laryngectomies done to date, with 21 recoveries. These figures, however, must not be taken as absolute; for in many we have no record beyond that of their supposed recovery at the time the case was reported.

We can obtain a fairer idea of the success of the operation in question by an examination of Hahn's record.

Professor Hahn has classified his operations as follows:

	No.	No. living.
I. <i>Total</i> extirpation of larynx, on account of carcinoma and sarcoma.....	10	1
on account of stricture.....	2	2
II. <i>Partial</i> extirpation for cancer	4	3
for stricture.....	1	1
III. <i>Partial tracheal</i> extirpation on account of cancer....	1	—
Total.....	18	7

Here, then, we have a total of 7 recoveries in 18 operations. In the partial operations the record is very good; for, as will be seen, we have here a record of 4 recoveries out of 5 operations. I had the pleasure of seeing the only surviving case of *total* extirpation. The patient is now seventy-five years of age, and was operated upon seven years ago. A very beautiful result; the old man having quite a respectable voice, and one can understand every word he says. Professor Hahn does not consider the operation a dangerous one, provided it is performed *early*, and the *cancer* shows no tendency to a *soft* variety.

In the Crown Prince's case, as is known, it was proposed to do a partial extirpation, and, if we can judge anything by the above figures, his chance of surviving was very great. The distress of the German people at his critical condition is very deep, for the Crown Prince is greatly beloved; and I am told that Bergmann had received three letters, from different men, begging that he should take their healthy larynx, if such a thing was possible, and transfer it to the Prince—for they would gladly die to save his life.

Two partial laryngectomies have been done here in the last month: One by Bergmann, upon a healthy man of about forty years, whose larynx had been involved for two months only, and who died a few days after the operation. The second was by Hahn, upon whose invitation I was present at the operation.

The patient was a fine-looking fellow of thirty-six. The cancerous growth, of one and a half years standing, had destroyed the left vocal chord. He was operated upon exactly one month ago. He did well from the first, and is now rapidly recovering. I had the pleasure of seeing him a few days since, sitting up and able to swallow liquid food.

The operation was rapidly performed under perfect antiseptics; the only thing calling for special mention is the use of a

large tracheotomy tube,* wrapped with iodoform-gauze. This is of a size which completely fills the lumen of the trachea, and absolutely prevents the entrance of blood into the lungs, besides enabling chloroform to be administered.

The other subject of general discussion here is, or was, the announcement of the discovery of the *bacillus of cancer* by a young man, Scheurlen, an assistant of Leyden.

Scheurlen brought forward the results of his investigation on Monday last at the *Verein für Innere Medicin*. Of course, all medical Berlin was present, and the paper was listened to with great interest, which eventually gave place to greater disappointment. Scheurlen is only twenty-five, and graduated last spring from the University. The tremendous importance of this subject—a cancer bacillus—justifies a *résumé* of the latter's paper, the text of which comes to me this morning in the *Berliner klinische Wochenschrift*. Briefly: He took twenty carcinomas from various sources, and as a vehicle for pure cultures he first used the serum from a pleurisy. This was coagulated in sterilized tubes after Koch's method, and vaccinated with the "cancer milk" from the original cancers—and in three days occurred different changes indicative of the development of bacilli.

From each of ten tumors twenty vaccinations were made, and seven were successful. Microscopic examination of these showed a peculiar bacillus and spores,

which, under sufficient power showed movement. The bacilli colored with Gram's method, but only the ends. The spores colored with nitric acid and water only. He claims that no other bacilli and spores have the same form or movement, or color in the same way. The bacilli were found eight times out of ten when colored after Gram's method.

When cultivated from the serum in agar-agar, then bacilli appear in ten hours, the spores after ten days. A first coloring of these spores with fuchsin aniline, and afterward with violet or blue, makes a very striking picture.

In gélatine, the growth of the bacillus is very slow.

Direct cultivation from the tumors in agar-agar or gelatine, gave six results from seventy cultures. Two potatoes gave infusion of peptones. From cabbage, after twelve to twenty-four hours, he got the characteristic microbes.

The mammary glands of six dogs were injected with cultures from potato, or agar-agar. In four days there were circumscribed hardness and swelling of the glands. The tumor was removed from two of the dogs, and microscopic examination showed considerable cell proliferation, with large granular epithelioid cells, among which moving bacilli spores could be seen. Finally, he claimed to have discovered the cause—*i. e.*, the bacillus of cancer.

On this claim the criticisms have been very severe. But it is only fair to await his further investigations.

*An inferior tracheotomy was done.

THE MEDICAL CORPS OF THE NAVY.

We are glad to observe that the attention of Congress is likely to be called before long to the necessity of increasing the attractiveness of the naval service for medical men. As matters are now, either the vacancies must go on increasing in

number or the standard of requirements must be lowered to let in an inferior class of men. Whichever of these results ensues, the navy must suffer in consequence.—*New York Medical Journal*.

THE ACTION OF DRUGS ON THE KIDNEY.

The action of drugs on the circulation and secretion of the kidney is a subject as interesting as it is comparatively little known. A brief and valuable contribution to the subject was made by Dr. C. D. F. Phillips, of London, to the Ninth International Medical Congress, and published in the *Lancet* of November 12, 1887. The experiments were made on cats and dogs. The results arrived at may be summarized as follows:

The effects of caffeine citrate, in half-grain doses: The *blood-pressure* is first lowered, and is then raised, both effects being of short duration and slight, especially the rise of pressure. The *heart* showed first a diminution in the force of the beats, followed by a slowing, with beats of markedly increased force. On the *kidney* caffeine causes at first contraction, lasting two or three minutes, and accompanied by diminution or even arrest of secretion; this is followed by expansion, that lasts, after a one-grain dose, more than half an hour sometimes, the flow of urine being at the same time trebled. That the effects on the kidney cannot be due to the changes in the general blood-pressure, is shown by the fact that they do not occur simultaneously.

The effects on the general blood-pressure are slight, and last only a few seconds, the effects on the kidneys being measured by minutes.

Ulexine, the new alkaloid obtained from the seeds of the common gorse, acts in a similar way to caffeine. The objection to it is that its diuretic action is maintained only by doses that would either kill or produce violent convulsions. Like caffeine, it produces first a constriction and then an expansion of the renal vessels, with diuresis. It differs from caffeine, 1, in being more powerful; 2, its effects are more transitory; 3, repeated doses of caffeine

injected rapidly cause only contraction of the kidney, not followed by expansion. A similar excess of ulexine causes expansion only, without contraction. Other substances that cause expansion of the kidney are dextrose, urea, acetate and chloride of sodium, and probably all constituents of the urine. More numerous are the drugs causing constriction of the kidney. Digitalin causes contraction in doses of $\frac{1}{16}$ gr., which persists for as much as half an hour. While it is difficult to say if digitalis is a true diuretic, or only exerts its effects through the heart, the urine is not diminished during the contraction of the kidney, as is the case with caffeine, but it is generally increased. The explanation probably lies in the effect on the general blood-pressure, digitalin raising and caffeine lowering it.

While spartein acts similarly to digitalin on the heart, general blood-pressure, and renal vessels, it causes a great diminution of urine; and its so-called diuretic effect, in disease, is due to improvement of the general circulation. The chief action of strophanthin and apocynin is on the heart muscle, and they produce little or no effect on the peripheral vessels. Turpentine, adonidin and barium chloride produce marked renal contraction without diuresis. From the above it is seen that "reputed diuretics more commonly produce contraction of the renal vessels than expansion. Further, that expansion is either slight, as by acetate of soda; or, if large, as by citrate of caffeine, it is only produced by small and initial doses. The powerful action of alexin on the respiratory mechanism is a great drawback to its use; one-sixth of a grain was used in our experiments, but one-twelfth of a grain would completely arrest respiration. Then, again, such drugs as produce contraction of the kidney cannot be bracketed together, since,

though they all have the same effect on blood-pressure, digitalin alone has an obviously diuretic effect." The flow of urine is not so much dependent on blood-pressure as on the rate of the blood-flow in the renal vessels. "It is necessary also to remember that although such drugs as strophanthin produce a great increase in the force of the cardiac beats, yet the heart is very much slowed, so that it is possible that the amount of blood sent into such an organ as the kidney in a given time may remain the same; whereas, such a drug as digitalis, producing a rise of blood-pressure

and a contraction of the kidney vessels, may cause an increased quantity of blood to pass through those vessels, and thus it acts as a diuretic. Inasmuch as spartein has not a marked diuretic action, we must also assume that digitalin has some peripheral action on the secretory apparatus of the kidney." Dr. Phillips concludes his paper by calling attention to the value of the plethysmographic method of experimentation in regard to the action of drugs on the circulation.—*Journal of The American Medical Association*.

RENAL STONE AND ITS DIAGNOSIS.

Since the operation of nephrectomy was first established by Simon, 1869, there have been, according to Gross, two hundred and thirty-three cases reported, with a mortality of 44.63 per cent. The records of the later work of surgeons in this line no doubt give better results than are indicated by a consideration of all cases, including those operated upon when the technique was less perfectly understood.

An operation apparently much more brilliant in results than nephrectomy is that of nephro-lithotomy, first performed by Mr. Henry Morris in 1880, for removal of a renal calculus. This has now been done over twenty times, with a mortality of only eight or ten per cent.

It seems, therefore, as if, by the help of modern renal surgery, kidney-stone could now be treated with satisfactory results. In a recent number of the *Practitioner*, Mr. Jordan Lloyd, of Birmingham, calls attention to some views of his own regarding this matter. One trouble, he thinks, in the surgical treatment of renal lithiasis, is that the diagnosis is quite as often made incorrectly as otherwise. In twenty-five instances kidneys have been "explored" for supposed renal calculus without any stone being found. The operators in three cases

have not been deterred by the trivial fact of a false diagnosis, but have taken out the kidneys just the same. The kidney, like the ovary, has to pay its tribute to the mad frenzy of the modern record-making surgeon.

Mr. Lloyd thinks that fewer mistakes will be made, first, after the knowledge of clinical symptoms is more complete, and, second, when present misconceptions of the anatomy of the renal pelvis are corrected.

As to the latter point, he claims to have demonstrated, by casts taken from human kidneys, that the pelvis is an utterly different arrangement to what the text-books would lead us to believe; and that, instead of its being a "funnel-shaped membranous sac," chiefly located in the organ's interior, it really consists of a cluster of branching tubes; so that the procedure of exploring the kidney's interior, by means of a finger introduced into the pelvis through an opening in the kidney-substance, is practicable only in dilated kidneys, and is absolutely impossible when we are examining the interior of the viscus in anything approaching a normal condition. Mr. Lloyd has not yet found a healthy human kidney into the primary pelvic tubes of

which he could introduce his index-finger. The precise anatomical arrangement of the ureter and pelvis is stated to be as follows: "The ureter as it approaches the kidney enlarges from its normal caliber—about that of a No. 10 English catheter—until it measures from one-third to half an inch in diameter, and immediately on entering the hilum it breaks up into two, or sometimes three, primary tubular branches, varying in diameter from a No. 10 to a No. 20 English catheter, and measuring from a half to one and a half inch in length. These in turn give off secondary tubes, smaller in size—some less than a line in width—which end in cup-shaped calyces. Sometimes tertiary branches, still smaller in caliber, shoot off from these secondary tubes to end in calyces. With such a conception of the structure of the kidney's interior, many of the occasional difficulties with regard to symptoms, prognosis, and treatment of renal calculus are made more easy to understand.

Mr. Lloyd contributes a method of reducing the number of "missed calculi." It consists essentially in cutting down on the kidney by a lumbar incision. A long tenotome is then thrust through the kidney into

the lowest calyx. Through this opening is passed a child's bladder-sound, and the pelvis thoroughly explored.

The leading symptoms of renal stone, as given by the author in question, are as follows:

"Pain of a dull, heavy, dragging character, constantly located in one loin, sometimes shooting down the course of the ureter and along the spermatic cord to the testis, and always increased by exertion, is fairly diagnostic of stone; but, unfortunately for our art, the symptoms of disease are rarely true to type, their manifestations are capricious, and their inconsistencies are manifold.

"Pain may be present in both loins, and it then becomes very perplexing; or it may be referred to other and distant parts, so that the lumbar trouble may be altogether uncomplained of.

"It may be brought on by an injury. Much importance is attached to percussion of the region over the kidneys. The patient should stand upright, and the blow should be a sharp one. When a calculus is present the patient will complain of a stabbing pain, caused by the blow."—*The Medical Record*.

THE PATHOLOGY OF OLD AGE.

A work of unusual interest in many respects is one recently published by Dr. Émile Demange, of Paris, upon the pathological anatomy and clinical history of old age. Dr. Demange has had unusual opportunities for studying senility in its various phases in the Hospital for the Aged, at Nancy. His pathological observations include more than five hundred autopsies.

Like most popular French scientists, Dr. Demange delights in reducing things to a formula. In the present case the dominating idea of the book is that the changes of senility are due to disease of the blood-vessels, and that the arteries make us old.

In his five hundred cases there was always vascular disease, at least in the smaller vessels. Its characters were a proliferation of the endothelium, thickening of the middle muscular coat, and proliferation of the external coat—in fine, a "fibrous endo-peri-arteritis," tending to narrow and close the vessel's lumen.

The sclerosis thus produced tends to radiate from the blood-vessels, and causes wasting of the parenchyma. Such is the view of Demange.

Charcot, on the other hand, attributes the wasting to insufficient nutrition, through partial closure of the vessels. In the

larger vessels atheroma takes place through the obliteration of vasa vasorum by arteritis. In the heart there is first an endo-peri-arteritis of the coronary arteries, consequent sclerosis of the cardiac muscle, atheroma of the endocardium and valves, and finally hypertrophy and dilatation, due to the peripheral obliteration. This compensatory hypertrophy of the senile heart has been described by Charcot and others. The signs of this senile hypertrophy are not always especially characteristic; indeed, in old people the heart is one of the best of the organs. Owing to the atrophied and emphysematous lungs, and to the more rigid thorax, the blood of the aged is poorly oxidized, and has more of a venous character than in earlier life; it coagulates more easily; the corpuscles and the hæmoglobin diminish, while cholesterin and urea increase. The blood is more toxic in quality, therefore.

The central temperature of the aged, contrary to general belief, is not much different from that of early life. The digestive organs are affected in varying degrees with atrophic change. The mucous membrane of the stomach and intestines is

white, thin, and glossy, and its arteries atheromatous. The liver is small and sclerotic, while the kidney can hardly be distinguished by the naked eye from the cirrhotic or gouty kidney.

Similar atrophic and fibrous changes affect the system throughout. They are all due primarily, according to Demange, to the vascular disease. This lessens the nutrition, the cells atrophy, sclerosis follows, or, still more often, the sclerosis radiates from the vessels and encroaches on the parenchyma, compressing the cells and causing their atrophy.

To the question, What causes the arterial disease? Demange answers that it is the irritant effect of an excess of products of dis-assimilation circulating in the blood, a vice of metabolism. But as this excess of irritants comes from the tissue-cells, we find that senility, after all, is due to that loss of balance between assimilation and dis-assimilation which is part of the great biological law of life and growth. We must grow old; it is registered in the protoplasm of the cell from the moment that life was imparted to it.—*The Medical Record*.

THE USE OF WATER AT MEALS.

Water, as forming so large a portion of the human body, should occupy an important place on our diet list, and the vexed question as to when to take it and at what temperature is discussed in the *British Medical Journal*.

Opinions differ as to the effect of the free ingestion of water at meal times, but the view most generally received is, probably, that it dilutes the gastric juice and so retards digestion. Apart from the fact that a moderate delay in the process is by no means a disadvantage, as Sir William Roberts has shown in his explanation of the popularity of tea and coffee, it is more than doubtful whether any such effect is in real-

ity produced. When ingested during meals, water may do good by washing out the digested food and by exposing the undigested part more thoroughly to the action of the digestive ferments. Pepsin is a catalytic body, and a given quantity will work almost indefinitely, provided the peptones are removed as they are formed. The good effects of water, drunk freely before meals, has, however, another beneficial result—it washes away the mucus which is secreted by the mucous membrane during the intervals of repose, and favors peristalsis of the whole alimentary tract. The membrane thus cleansed is in a much better condition to receive food and convert it into soluble

compounds. The accumulation of mucus is specially well marked in the morning, when the gastric walls are covered with a thick tenacious layer. Food entering the stomach at this time will become covered with this tenacious coating, which for a time protects it from the action of the gastric ferments, and so retards digestion. The tubular contracted stomach, with its puckered mucous lining and viscid contents, a normal condition in the morning before breakfast, is not suitable to receive food. Exercise before partaking of a meal stimulates the circulation of the blood, and facilitates the flow of blood through the vessels. A glass of water washes

out the mucus, partially distends the stomach, wakes up peristalsis, and prepares the alimentary canal for the morning meal. Observation has shown that non-irritating liquids pass directly through the "tubular" stomach, and even if food be present they only mix with it to a slight extent. According to Dr. Leuf, who has made this subject a special study, cold water should be given to persons who have sufficient vitality to react, and hot water to the others. In chronic gastric catarrh it is extremely beneficial to drink warm or hot water before meals, and salt is said in most cases to add to the good effect produced.—*The Weekly Medical Review.*

RADICAL CURE OF HERNIA.

Sir William Stokes, of Dublin, reports in the *British Medical Journal*, December 3, 1887, three cases operated upon by the following method: After exposing the sac by the usual herniotomy incision, and dissecting it away from the spermatic cord, it is ligated in two places and divided between. The sac is then seized with forceps and twisted until resistance is felt, as recommended by C. B. Ball.

Two silk sutures are then introduced, each passing through the pillars and walls of the canal, nearer the inner than the external ring, and each transfixing the twisted sac.

These sutures are brought through the skin one inch from the margins of the wound and tied in button fashion. The skin is united by superficial suture.

Mr. Kendal Franks, of Dublin, recommends an incision on a higher plane, but in the same direction, than the inguinal

canal, and closure of the internal and external rings by buried sutures of silver wire. Those for the internal ring are passed through the external oblique, Poupart's ligament, the internal oblique and the sac, and out through the conjoined tendon and external oblique on the opposite side of the canal. Two wires are used. A third wire closes the external ring.

Forty-one operations for radical cure of hernia are reported by Mr. A. E. Baker. The operator uses silk for suture in preference to catgut or kangaroo tendon. His method is to ligate and divide the sac, leaving the scrotal portion in position, then to invaginate the ligatured stump and suture the pillars. A case of strangulated femoral hernia containing an ovary and fallopian tube, operated upon with removal of these structures and suture of the sac, is reported to have been followed by complete recovery.

THE NEW YORK CANCER HOSPITAL.—The New York Cancer Hospital, which was formally opened this week for the reception of patients, is the only one of its kind in this country, and bids fair, with the means to the end of treating the most dreaded of all diseases, to mark an era in the history of public institutions in this city. Desirably situated, handsomely built, and thoroughly equipped as it is, it gives a reasonable promise of great usefulness. With the objects, not only of affording relief for a large class of sufferers, but of stimulating research and perfecting skill, it certainly lays claim to the heartiest good wishes of every lover of humanity, and the best encouragement to every scientific student of our noble art. It is not fair to assume that because cancer is now, as a rule, incurable, that we may not yet find some remedy as efficacious for its successful treatment as is bark for intermittents and mercury for syphilis. At least we should be tireless in our endeavors to make such a realization possible. The Cancer Hospital, dedicated to such high purposes, modestly and earnestly appeals to the profession of this country for aid and encouragement. * * * —*Medical Record.*

COLOR-BLINDNESS A BRAIN AFFECTION.—According to our scientific cotemporary, *Nature*, Professor W. Ramsay urges, in a recent issue of the Proceedings of the Bristol Naturalists' Society, that the particular defect giving rise to color-blindness lies, not in the eye itself, but in the brain. Certain persons, he points out, are incapable of judging which of two musical tones is the higher, even when they are more than an octave apart. Yet as such persons hear either tone perfectly the defect is not one of deafness. He accordingly argues that in such persons the brain is at fault, and thence proceeds to the assumption that it may be equally true that the inability to perceive certain colors is not due to a defect in the instrument of sight by

the eye, but to the power of interpreting the impressions conveyed to the brain by the optic nerve. If this is the case the problem is no longer a physical one, it falls among those with which the mental physiologist has to deal.—*Medical Press and Circular.*

THE DANGER OF KEEPING DOGS.—One of the dangers resulting from keeping dogs in dwelling houses is the risk of disseminating the ova of the *tænia echinococcus*. The possibility of the transmission of this dangerous insect is too generally overlooked, but if the dog play with the children, the latter often allow themselves to be licked, and in this way the ova may be transferred. In dry weather the ova may be wafted about by the wind, and so find their way into the body. In Iceland, where everybody possesses half-a-dozen dogs, 28 per cent. of which are affected with this *tænia*, hydatid cysts are very common. As the process of development is a slow one, the source of the infection may, and probably will, escape attention, and in any case would only be thought of when the evil had been done.—*Medical Press and Circular.*

THE NEW YORK QUARANTINE.—The State Board of Health of New York has forwarded to the Governor of the State a lengthy report on the New York Quarantine Station, which concludes as follows: "It is the unanimous opinion of those posted on such matters, that it would be difficult to imagine a worse state of affairs than now exists at the quarantine station. It is hard to realize in this age of civilization that the harbor of the city of New York should be so inadequately provided with facilities for the prevention and extinction of an epidemic. The State Board of Health does not consider it within its province to pronounce upon the actions of the quarantine authorities.—*Medical News.*

BOOK-REVIEWS.

ON THE ANIMAL ALKALOIDS. THE PTO-
MÄINES, LEUCOMÄINES AND EXTRACTIVES IN
THEIR PATHOLOGICAL RELATIONS. By Sir
WILLIAM AITKEN, Knt., M. D., F. R. S.
Pp. vi and 61. 1887. Philadelphia: P. Blakis-
ton, Son & Co. Chicago: W. T. Keener.

The aim of this little work is, perhaps, best shown by a portion of the author's preface. He says: "The following pages owe their existence to the necessity of finding a subject suitable for a lecture introductory to the course of instruction at the Army Medical School at Netley." "Speaking generally, it may be said that the investigations which underlie the most important practical work of the military medical officer, alike on land and sea, relate especially to the causation of diseases, and with a view of their prevention; and in carrying out such investigations, the time appears to me to have come when it is desirable to open up new lines of thought and of practical departure in pathology, which may lead us to entertain broader, or at any rate less narrow, views than those we have been accustomed to entertain as to the origin of some diseases." * * * "So much has been already done by experiment and research in the past twelve or fifteen years, that such a concise summary as I have here attempted to give may show the bearing of the results and their value, as illustrating the pathology and the origin of some diseases.

"It is further desirable, if possible, to get rid of the term 'cause' altogether, as applicable to any particular disease. Our text-books, as yet, have been unable to specify and establish any *single* thing as the final cause of any disease. There is no disease I know of which acknowledges a *single* cause. It ought rather to be our business to find out the many and ever varying factors or conditions which, as antecedents, combine to produce disease; and while we must acknowledge the influence of many physiological agents in aiding and abetting these factors, we must mainly look to the physiological agencies within our own bodies during life as competent to bring about many forms of disease."

The author first considers the *Elaboration of Alkaloids from proteid substances* (Ptomälines and Leucomälines); and also of *azotized uncrystallizable substances* (extractives) and their toxic properties.

He then considers the *Pathology and Symptoms of Poisoning* by the extractives and by the animal alkaloids—poisoning by the accumulation of normally elaborated but toxic products, and the origin in this way of constitutional diseases.

Much of the address is based upon the results of the investigations, as the author states, by MM. Gautier and Peter, and Drs. A. M. Brown and Lander Brunton. He says: "May we not, therefore, recognize in these affections the evidence of poisoning by a toxic alkaloid, or alkaloid of putrefaction; and that certain nutritive ingesta may give rise to the formation of such toxic alkaloids?" and then quotes from Dr. A. M. Brown: "Hence it is no great stretch of scientific license for us to recognize or trace in pathology a very natural series of morbid phenomena or ailments starting from the *botulism* of the Germans up to Asiatic cholera."

The address contains useful and practical suggestions, and its careful perusal will be found to be interesting.

SYPHILIS. By JONATHAN HUTCHINSON, F. R. S., LL. D. With eight chromo-lithographs. Pp. xii and 532. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co.

This small volume is one of the *Clinical Manuals for Practitioners and Students of Medicine*, issued by Messrs. Lea Brothers & Co.

The author of this manual is so well known, and justly held in so high esteem by the medical profession, both of Europe and America, that whatever emanates from his pen commands attention, for it is always safe to assume that it will not be found to be wanting in merit. He has given so much attention to the subject of syphilis as to have made him a recognized authority on that disease. His name is probably permanently connected with that deformity of the teeth known as *Hutchinson's teeth*, one of the marked evidences of inherited syphilis, which he so accurately described as an almost pathognomonic symptom of that affection. In his preface to this manual he says: "The literature of syphilis is encumbered with ill-founded opinions and untrustworthy facts." "Our patients often have reasons for not telling us the exact truth, and, still more often, they are not themselves cognizant of it." "None of the symptoms of the disease are pathognomonic, and with the best desire in the world to be candid, both patients and their advisers may give us misleading evidence. Such being the sources of error, it becomes wise to distrust all isolated facts, however definite they may appear to be," etc., etc. Such words, from such an authority, should have great weight with the large number of physicians who are called upon to treat this disease in isolated cases, where the statements of patients cannot be implicitly accepted for the reasons given in this pre-

face, and should emphasize the necessity for the greatest care in diagnosis, treatment and prognosis.

The colored plates are intended to represent:

- I. Syphilitic Choroiditis.
- II. Erratic Chancres on the Fingers and on the Eyelid.
- III. Vaccination Chancres.
- IV. Chancre of the Tongue, and Papillary Growths on Tongue.
- V. Chancre of Nipple, and Syphilitic Disease of Tongue.
- VI. Teeth of Inherited Syphilis.
- VII. Different Stages of Syphilitic Keratitis (Inherited).
- VIII. Syphilitic Disease of the Nails.

These chromo-lithographs are fairly well executed, and are not of the kind sometimes seen in medical works, which are effective in misleading.

The character of the work and the price merited better binding than that in which it is issued, and which can scarcely be said to be in keeping with the manner in which this long-established house is accustomed to issue books.

FUNCTIONAL NERVOUS DISEASES—THEIR CAUSES AND THEIR TREATMENT, WITH A SUPPLEMENT ON THE ANOMALIES OF REFRACTION AND ACCOMMODATION OF THE EYE, AND OF THE OCULAR MUSCLES. By GEORGE T. STEVENS, M.D., Ph. D. Pp. xiii and 217. New York: D. Appleton & Company. Chicago: A. C. McClurg & Company.

The author says: "This memoir * * * is now presented in the English, as it was then in the French language," when it was awarded a prize by the Royal Academy of Medicine of Belgium. Some changes and some additions, which are noted, have been made in the present edition.

It deals with a practical subject, which may be said to be a sort of connecting link between neurology and ophthalmology, since many of the reflex nervous troubles are connected, either as cause or consequence, with abnormalities of the eye or its appendages. Recognition of this fact, in the last few years, has led to the relief of much suffering from functional disorders originating in errors of refraction and defects of accommodation. Whether the positive and well-known views of the author of this book regarding the influence of the action of the muscles of the eyeball be accepted in their entirety or not, it is due him to say that he has been an industrious investigator of the subject, and that his work has contributed to a better understanding of it. His book is a fair exposition of his views, and it is no small compliment to him that so eminent a body of medical men as the Royal Academy of Medicine of Belgium should have awarded the work such recognition.

Asthenopia, like neurasthenia, is often a result, following from one or more causes, so that careful

investigation is generally necessary to discovery of the origin of it. With the tendency of the human mind toward what are regarded as *hobbies*, it becomes the physician to be on guard against acceptance of the extreme views sometimes held by enthusiasts; but it is well in our efforts to avoid the Scylla of enthusiasm that we should not fall into the Charybdis of indifference. Even if this work does make claims which some may be slow to accept, its suggestiveness will serve a good purpose, and all will be glad to accord him whatever credit may properly attach to his claim of priority in recognition of the causes and their influence in these cases of asthenopia and reflex troubles if longer time should lead to full acceptance of his views by the medical profession. Whatever view may be taken of the advanced views of the author, the book will probably serve a good purpose.

HEALTH LESSONS. A PRIMARY BOOK. By JEROME WALKER, M. D. Pp. 194. 1887. New York: D. Appleton & Company. Chicago: A. C. McClurg & Company.

"In this little book, the aim has been to teach health subjects to young children in a truthful and interesting way, and by somewhat different methods than those usually employed."

The aim is a commendable one, and it is sought to accomplish that object at an important time in life. One can but wish that the effort might be successful. If children could be made to understand more about their bodies and the requirements of them, and the influence exerted by environment, the resulting tendency would be in the direction of better mental and physical health, and life would be entered upon under more favorable circumstances. With better health, there would be less temptation in the later years of life to the use and abuse of nervous stimulants. A glance at the titles of the seventeen chapters of which the book treats, in a unique manner, will give a fair idea of the field the author seeks to cover. The mode of presentation of the subjects, and the illustrations given, are likely to attract the attention of children, and to interest them.

- I. Our Bodies.
- II. What our Bodies Need.
- III. Air and Sunlight.
- IV. Breathing, Voice, Air-Supply.
- V. Use and Abuse of Food.
- VI. How Food Becomes Blood.
- VII. What to Eat.
- VIII. Wear and Repair.
- IX. Warmth and Clothing.
- X. Cleanliness.
- XI. Work and Play.
- XII. Our Framework.
- XIII. How we Move.
- XIV. Rest.
- XV. The Brain and the Nerves.
- XVI. The Senses.
- XVII. Accidents, Injuries and Poisons.

MANUAL OF CLINICAL DIAGNOSIS. By OTTO SEIFERT AND Dr. FRIEDRICH MÜLLER. Third Edition. Revised and Corrected by Dr. FRIEDRICH MÜLLER. Translated by WILLIAM BUCKINGHAM CANFIELD, A. M., M. D. With sixty illustrations. Pp. xi and 173. New York and London: G. P. Putnam's Sons. Chicago: W. T. Keener.

In the preface to the first edition (1886) of this manual, the authors say: "We have endeavored to supply a want by giving, in an epitomized form, the different methods of examination." "We have also endeavored to consider the practical needs of the student and physician by noting only what is reliable, and omitting everything self-evident and of secondary importance."

In the preface to the second edition (1886) it is stated that "a number of improvements and additions have been made, and among them it seemed necessary to add some new illustrations, especially to the chapters on blood and urine."

In his preface to the English translation of the book (1887) it is stated that "it has been brought down to the latest acquisitions of science, thus representing the most advanced views."

The work is divided into fourteen chapters on *The Blood, The Temperature, Organs of Respiration, The Sputum, Circulatory System, The Pulse, Digestive and Abdominal Organs, The Urine-Producing System, Transudations and Exudations, Parasites* (animal and vegetable), *The Nervous System, Analysis of The Pathological Concrements, Metabolism and Nutrition*. There are also added a *Table of the Weights of The Human Body*, and a Dose Table.

The illustrations, with the exception of some of the tracings of the pulse, are good. It is well printed, on good paper, and is a useful little book.

A MANUAL OF THE PHYSICAL DIAGNOSIS OF THORACIC DISEASES. By E. DARWIN HUDSON, JR., A. M., M. D., late Professor of General Medicine and Diseases of the Chest in the New York Polyclinic; Physician to Bellevue Hospital, etc. One volume. Octavo. 162 pages. Nearly 100 illustrations. New York: William Wood & Company. Chicago: W. T. Keener.

This handbook, by the late Dr. Hudson, designed originally for the use of his followers in the New York Polyclinic, is presented in its present form, enlarged and amended to meet the requirements of practitioners and advanced students.

The regional anatomy of the chest, the methods and instruments of precision used in its exploration, the acoustics of normal and abnormal chest-sounds, and the normal and pathological condition upon which these depend, are briefly, but comprehensively,

reviewed. The intra-thoracic diseases of the respiratory tract are presented very conveniently for reference in tabulated synopses, embracing under each the definition, causes, symptoms, physical signs, diagnosis, prognosis and treatment.

The normal and abnormal states of the heart are similarly treated, and a short tabulated list of cardiac organic and inorganic murmurs is added.

In so small a work, upon such a comprehensive subject, it is impossible to make more than a brief allusion to many important items, and much that is of interest must necessarily be omitted. This little volume will be found useful by many as a convenient manual of the clinical aspects of intra-thoracic diseases.

A MANUAL OF ORGANIC MATERIA MEDICA.

Being a Guide to *Materia Medica* of the Vegetable and Animal Kingdoms, for the use of Students, Druggists, Pharmacists and Physicians. By JOHN M. MAISCH, Phar. D., Professor of *Materia Medica* and Botany in the Philadelphia College of Pharmacy. Third Edition. With two hundred and fifty-seven illustrations. Pp. xv, 531. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co.

The intention has been to produce a text-book embracing in a concise form, the essential physical, histological and chemical characters of organic drugs, for use in connection with lectures in colleges of pharmacy. That the work has rapidly reached its third edition is evidence of appreciation, and none will question the judgment of the author, who is well known in connection with the National Dispensatory, concerning the requirements of these students, and of pharmacists generally. An epitome often suffices to recall the details of the lecture. The illustrations are numerous and excellent.

It is, however, not so well adapted to the needs of students of medicine, for the reason that the medical properties of drugs are but superficially and sometimes inaccurately described, and official preparations with their doses are omitted.

W. E. C.

DRUITT'S SURGEON'S VADE-MECUM. A MANUAL OF MODERN SURGERY. Twelfth Edition. 1887. Octavo. Pp. 985. With three hundred and seventy-three illustrations. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co.

In its new edition this work is much enlarged, and radical changes have been made in arrangement of the text, as well as in the treatment of the subject-matter.

The editor has incorporated most of the newer

ideas of pathology. The pages on diagnosis constitute a new and excellent feature.

Many of the illustrations are new and graphic, being drawn from life.

In the opening chapters bacteria are classified, and their causative relation to disease discussed.

The pathology and classification of infective diseases are those of the latest investigators.

In short, the book is modern, clearly written, well arranged, and much more complete than most manuals.

It will be a valuable addition to the students' list of text-books. H. H. F.

THE VEST-POCKET ANATOMIST. (Founded upon "Gray.") By C. HENRI LEONARD, A. M., M. D. Thirteenth Revised Edition. Eighty-five illustrations. Pp. 154. Detroit: The Illustrated Medical Journal Company.

The fact that this small handbook of anatomy has reached a thirteenth edition would indicate that there has been a demand for even so condensed a work on anatomy.

The illustrations are fairly good copies of those

given in Gray's Anatomy, and the size of the book makes it convenient for the student.

THE URINE. MEMORANDA, CHEMICAL AND MICROSCOPICAL, FOR LABORATORY USE. By J. W. HOLLAND, M. D. Illustrated. Pp. vi and 43. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener.

This small manual, designed "For Laboratory Use," will be found to be of convenient size for that purpose.

It first gives the *composition of healthy urine*, which is followed by examination of morbid urine. After instruction as to the method of collecting the urine to be examined, especially that secreted during twenty-four hours, when accurate results are desired, directions are given for the various tests. These are accompanied by cuts, which are quite accurate, showing the different kinds of apparatus in making these tests, and seventeen illustrations of characteristics of morbid urines.

The paper and press-work are good, and the binding is as good as could be expected in a book that costs but fifty cents.

BOOKS RECEIVED.

Hydrophobia—An Account of Pasteur's System. By Reynaud Suzor, M. B., C. M. Edin., M. D. Paris.

The Urine. Memoranda Chemical and Microscopical for Laboratory Use. By J. W. Holland, M. D.

Manual of Clinical Diagnosis. By Dr. Otto Seiffert and Dr. Freidreich Müller. Third Edition. Translated by William B. Canfield, A. M., M. D. Berlin.

On the Animal Alkaloids—The Ptomaines, Leucomaines and Extractives, in their Pathological Relations. By Sir William Aitken, Knt., M. D., F. R. S.

Lectures on Diseases of the Brain. By William R. Gowers, M. D., F. R. S.

The Principles and Practice of Medicine. Volume II. By Charles Hilton Fogge, M. D., F. R. C. P.

Transactions of the American Surgical Association. Volume V. Edited by J. Ewing Mears, M. D.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, A. M., M. D., LL. D.

Six Hundred Medical Don'ts. By Ferd. C. Valentine, M. D.

The Throat and its Diseases. By Lenox Browne, F. R. C. S., E.

A Manual of Organic Materia Medica. By John M. Maisch, Phar. D.

Text-Book of Therapeutics and Materia Medica. By Robert T. Edes, A. B., M. D.

The Study of History in American Colleges and Universities. By Herbert B. Adams, Ph. D.

Health Lessons—A Primary Book. By Jerome Walker, M. D.

Anatomy, Descriptive and Surgical. By Henry Gray, F. R. S., etc.

ITEMS.

HOW SCARLET FEVER COMES TO MICHIGAN.

The Michigan State Board of Health has received information from Dr. Sifton, health officer of Sutton's Bay township, which illustrates, in a striking way, how this country gets contagious diseases from the old countries. October 2, 1887, a family arrived in Sutton's Bay, Leelanaw county, direct from Norway. The family came over in the S. S. Ohio, of the Inman line, reaching New York September 30. Scarlet fever was on board the steamer during the passage, one child dying before the landing, and "several more were sick in the same way." One child of this family was taken sick with scarlet fever the day after reaching New York. The family, however, proceeded over the New York Central and the Lake Shore & Michigan Southern to Michigan; then over the Detroit, Grand Haven & Milwaukee, and the Grand Rapids & Indiana to Traverse City; then to Sutton's Bay. Another child of the family has since come down with the disease. The family had a certificate, signed by the surgeon of the steamer, that they had been protected by vaccination against small-pox; so they passed without detention the quarantine authorities at the port of New York, after they had been exposed to a contagious disease which causes more deaths by far in this country than small-pox causes.

A DECISION AS TO COSTS IN SUITS FOR MALPRACTICE.

For a considerable time a suit has been pending against a physician of Boston, founded on a charge of malpractice involving some operative procedure for removal of the ovaries. It has been tried four times. The first three trials resulted in disagreement of the juries. The fourth trial recently terminated in a verdict for the defendant. But the item of most interest to members of our profession is,

that at the opening of the last trial the counsel for the defense applied for and obtained a decision of the court, that all the costs of the four trials should be paid by the plaintiff, in case the final verdict of the jury should be in favor of the defendant. The example thus furnished in this trial is worthy of the careful consideration of all judges before whom charges of malpractice are brought, a large proportion of which have no other foundation than a desire to extort money from the defendant sufficient to secure a good fee for the prosecuting counsel.—*Journal of The American Medical Association.*

DIABETES MELLITUS.

Professor C. W. Purdy says: "In the medicinal treatment of diabetes mellitus, if the disease be of true nervous origin, preference is given to bromide of arsenic in the form of Gilliford's solution, which may be given in doses of from five to ten drops three times daily in water, after food. The average dose necessary to influence favorably the disease has been found to range at about eight or nine drops. If, at the end of about three weeks, sugar be still present in the urine, the dose should be increased to ten drops."

The above solution should not be confounded with Clemens' solution of arsenic bromide, as the dose of the latter ranges much smaller—two to five drops.

THE health officers of Baltimore blame the imperfect quarantine at New York for an outbreak of diphtheria in the Italian quarter of that city. It will be well if the country next summer does not have to place the responsibility for an outbreak of cholera in the same quarter.—*Chicago Evening Journal.*



R. C. Hamill, M.D.